



MARICO MARINE

HAZMAN II: USER MANUAL

MARICO MARINE Hazman Demo Navigation Risk Register Hazman Administration Hazman Demo Send Feedback Logout

Hazards Risk Controls Reviews Reports Audit Risk Criteria Document Database Risk Developer Archive Incidents

Registers > Southampton Demo Register > Risk Register Summary Southampton Demo Search Hazards Add Hazard

Filters Open Filters Show All Areas (All) Stakeholders (All) Vessel Types (All) Categories (All) SMS Owners (All) Sort by Rank

Hazards are ranked by residual risk. Highest Risk Lowest Risk Average Risk

6.24 0.76 # 3.35

Hazards Controls Incidents 25 47 34

Risk by Incident Category

Rank	Hazard Ref	Hazard Title	Category	Risk
1	18	Tanker grounds within port limits	Grounding	5.74
2	21	Pilot falls from ladder	Personal Injury	4.97
3	15	Vessel on fire at anchorage	Fire\Explosion	4.78
4	14	Vessel freeing gas from empty tank suffers fire or explosion.	Fire\Explosion	4.20
5	12	Fire on fuel barge whilst bunkering vessel alongside	Fire\Explosion	4.10
6	11	Explosion on vessel during hazardous goods transfer.	Fire\Explosion	4.08
7	3	Collision Between Commercial Vessel and leisure or fishing vessel	Collision	3.97
8	8	Tug Girding	Collision	3.91
9	16	Commercial vessel drags anchor and grounds	Grounding	3.86
10	24	Oil Spill from Bunkering Operations	Pollution	3.61
11	2	Collision - commercial vessel and sailing vessel	Collision	3.59
12	5	Commercial vessels in collision in approach channel	Collision	3.56
13	25	Oil Spill from casualty taking refuge in port area	Pollution	3.48
14	7	Passenger vessel or ferry collides with other vessel	Collision	3.39
15	22	Discharging bilges into water	Pollution	3.24
16	1	Bunker barge damaged on berthing	Collision	3.22
17	19	Buoy jumper injury during mooring operations	Personal Injury	2.94
18	20	Divers run over whilst surfacing	Personal Injury	2.90
19	6	Loaded container lost overboard from ship navigating in Approach Channel	Collision	2.60
20	9	Vessel drags anchor and collides with another	Collision	2.53

Report Number: 14UKHAZ
Issue: Vs2
Date: 08 August 2014



British Ports Association



MARINE AND RISK CONSULTANTS LTD

MARICO MARINE

HAZMAN II: USER MANUAL

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Date	Release	Prepared	Authorised	Notes
08/08/2014	Issue 02	AR/MR/ST	EJR	

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08/08/2014

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1 INTRODUCTION

Welcome! We at Marico would like to take this opportunity to thank you for using our product and hope that Hazman fulfils all your operational requirements. Hazman is a complete, web based risk assessment package that guides organisations in managing their strategic and operational risk and can be found at:

uk.hazman.org (Europe) or go.hazman.org (Asia-Pacific)

The following sections are included in this manual:

- The home screen (**Section 2** and **Section 3**);
- Customising risk criteria (**Section 4**);
- The risk module filter and information toolbar (**Section 5**);
- Viewing, editing and adding new hazards (**Section 6**);
- Managing your risk controls (**Section 7**);
- Reviewing your hazards and risk controls (**Section 8**);
- Publishing reports (**Section 9**);
- The audit trail (**Section 10**);
- Administrating your organisation (**Section 11**);
- Uploading documents (**Section 12**);
- Risk Developer (**Section 13**);
- The Archive (**Section 14**);
- Risk Reduction (**Section 15**);
- The Hazman approach to risk (**Section 16**);
- The incident database (**Section 17**);
- Accessing your incident database (**Section 18**);
- The incident database filter and information toolbar (**Section 19**);
- Incident Settings (**Section 20**);
- Adding an incident (**Section 21** and **Section 22**);
- Editing an incident (**Section 23**);
- Reviewing an incident (**Section 24**);
- The incident audit trail (**Section 25**);
- Incident reports (**Section 26**);

- Importing an incident database (**Section 27**);
- The incident document database (**Section 28**);
- The AIS swept path module (**Section 29**);
- The AIS swept path module settings (**Section 30**);
- Swept paths (**Section 31**);
- The AIS swept path module archive (**Section 32**); and finally
- The glossary (**Section 33**).

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1.1 LOGGING IN FOR THE FIRST TIME

When your Hazman account is created you will receive an email inviting you to log in for the first time. After accepting your invitation you will be prompted to provide a new password. This password will be the password that you use to log in from this point onwards.

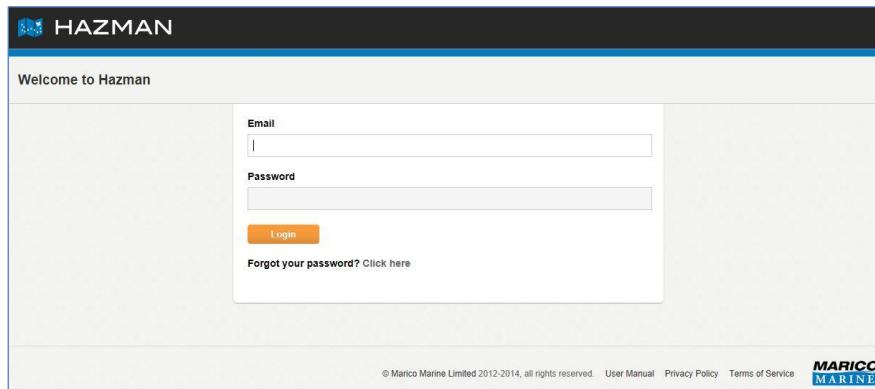


Figure 1: Hazman login window.

1.2 LOGGING IN

To log in to Hazman, enter the URL uk.hazman.org into your web browser and you will then be directed to the page shown in **Figure 1**. Enter the email address that your invitation to Hazman was sent to and your password in the boxes provided. If you fail to provide the correct password three times, your Hazman account will be temporarily suspended. To reinstate your user account, click the 'Forgot your password? Click here' icon below the 'Login' button (see **Figure 1**).

1.3 RESETTING YOUR PASSWORD

If you have forgotten your password, click the link on the login page below the 'Login' icon in **Figure 1** whereby you will be redirected to the reset password webpage. Enter your email address in the box provided and click the 'Email Reset Password Link' icon below where you entered your email address. You will then be sent a link to reset your account password via email. Open the email, click the link and choose a new password.

2 YOUR ORGANISATION'S RISK REGISTERS

Upon logging in, Hazman will display your organisational home page (**Figure 2**). This section will display all risk registers associated with your organisation in the Navigation, Health and Safety and Corporate sections. If you have subscribed to the Incident Module, your incident databases will be shown here, likewise the swept paths icon will appear if you have subscribed to the AIS Module. To access any of the registers simply click the link. Risk registers are sorted by the last five accessed so click 'Show All' to access others.

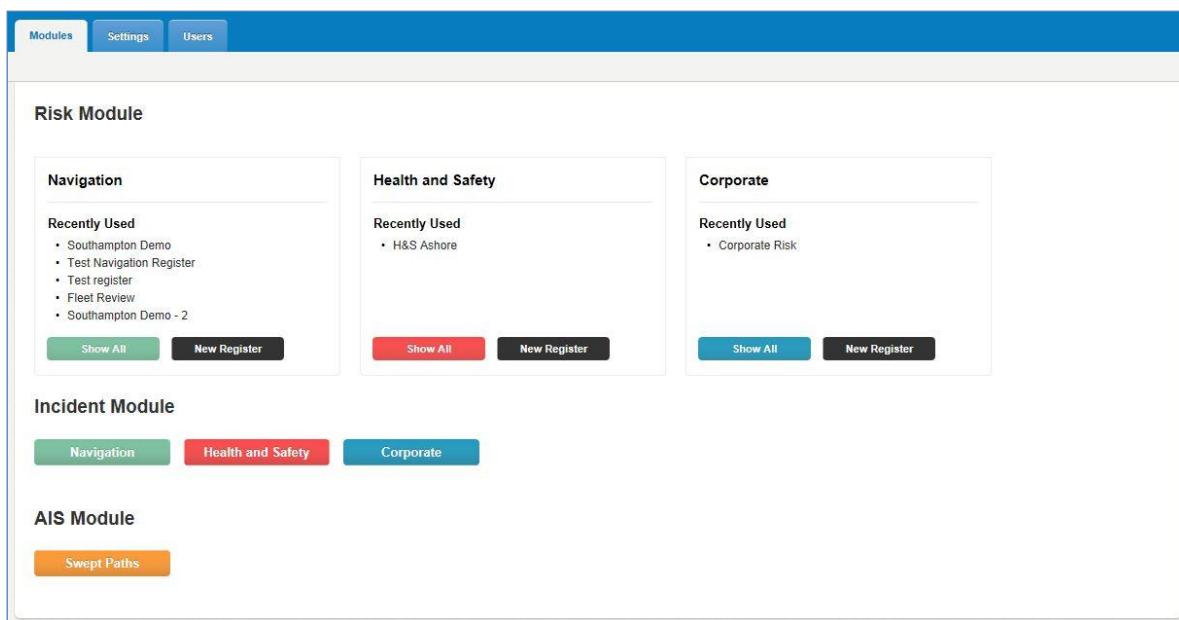


Figure 2: Your Organisation's home page.

For details about customising your organisation see **Section 11**.

3 RISK REGISTER HOME SCREEN

The risk register home screen appears as in **Figure 3** below. The relevant section in the manual for each feature is highlighted.

The screenshot shows the 'Risk Register Summary' page. At the top, there are several navigation links: 'Hazard Controls Section 7', 'Reviews Section 8', 'Reports Section 9', 'Audit Section 10', 'Risk Criteria Section 4', 'Document Database Section 12', 'Risk Developer Section 13', 'Archive Section 14', and 'Incident Database Section 17'. Below these, the 'MARICO MARINE' logo and 'Marco Marine UK' are displayed. A 'Hazards' menu is open, showing 'Hazards', 'Risk Controls', 'Reviews', 'Reports', 'Audit', 'Risk Criteria', 'Document Database', 'Risk Developer', 'Archive', and 'Backsheet'. A red arrow points from 'Hazards' to the 'Hazards' link in the menu. Another red arrow points from 'Add a Hazard Section 6.3' to the 'Add Hazard' button at the bottom right of the page. On the left, a 'Filter Menu Section 5' is shown with dropdowns for 'Areas (All)', 'Stakeholders (All)', 'Vessel Types (All)', 'Categories (All)', and 'SMS Owners (All)'. Below it is a 'Risk Summary Section 5' with three boxes: 'Hazards 26', 'Controls 48', and 'Incidents 20'. To the right is a 'Risk Plot Section 5' showing a scatter plot of Risk by Incident Category (X-axis: Frequency, Y-axis: Impact) with categories like FIRE, COL, GRO, PER, ENV, and POL. The main area is titled 'Hazards' and contains a table with columns: Rank, Hazard Ref, Hazard Title, Category, and Risk (residual / inherent). The table lists 20 hazards, such as 'Pilot falls from ladder' (Rank 1, Category Personal Injury, Risk 4.07/4.07) and 'Loaded container lost overboard from ship navigating in Approach Channel' (Rank 20, Category Collision, Risk 2.00/2.00). Red arrows point from 'Rank of Hazard in the Register' to the rank column and from 'Hazard Needs Review' to the hazard title of the last row. A large red bracket on the right side groups the 'Risk Plot' and 'Hazard List' sections.

Rank	Hazard Ref	Hazard Title	Category	Risk (residual / inherent)
1	21	Pilot falls from ladder	Personal Injury	4.07 4.07
2	18	Tanker grounds within port limits	Grounding	4.88 6.33
3	15	Vessel on fire at anchorage	Fire/Explosion	4.78 5.15
4	14	Vessel freeing gas from empty tank suffers fire or explosion.	Fire/Explosion	4.20 4.20
5	12	Fire on fuel barge whilst bunkering vessel alongside	Fire/Explosion	4.10 4.40
6	11	Explosion on vessel during hazardous goods transfer.	Fire/Explosion	4.08 4.27
7	29	Collision between Yacht and Ferry	Collision	4.03 4.03
8	8	Tug Girding	Collision	3.97 5.14
9	3	Collision Between Commercial Vessel and leisure or fishing vessel	Collision	3.97 4.46
10	16	Commercial vessel drags anchor and grounds	Grounding	3.91 4.80
11	24	Oil Spill from Bunkering Operations	Pollution	3.61 3.94
12	2	Collision - commercial vessel and sailing vessel	Collision	3.59 3.59
13	5	Commercial vessels in collision in approach channel	Collision	3.56 4.00
14	25	Oil Spill from casualty taking refuge in port area	Pollution	3.48 3.97
15	7	Passenger vessel or ferry collides with other vessel	Collision	3.39 3.63
16	22	Discharging bilges into water	Pollution	3.24 3.24
17	1	Bunker barge damaged on berthing	Collision	3.22 3.22
18	19	Buoy jumper injury during mooring operations	Personal Injury	2.04 4.60
19	20	Divers run over whilst surfacing	Personal Injury	2.00 3.14
20	6	Loaded container lost overboard from ship navigating in Approach Channel	Collision	2.00 2.60

Figure 3: Risk register home screen.

4 RISK CRITERIA SET-UP

The ‘Risk Criteria’ tab is where you are able to modify the criteria used for the risk assessment within the register. Depending on your permissions, this tab may not appear in some or all of the risk registers available to you. If you need to change the ‘Risk Criteria’ in a register where you do not have the permissions to do so, you will need to contact your administrator.

Important: A number of risk criteria settings should be set before any hazards are created/imported and therefore scoring conflicts are avoided. In particular the Frequency/Consequence scales should not be changed once hazards have been entered and scored.

4.1 REGISTER SETTINGS

When you open the ‘Risk Criteria’ tab, you are presented with the ‘Register Settings’ page (see **Figure 4**) where you are able to change the risk register’s name and group as well as the start dates of both the Register and Baseline Risk Assessment. There are options to:

- rank hazards by either residual or baseline risk;
- display live risk reduction;
- enable auditing;
- lock the risk criteria, the risk register, or neither; and
- activate actions.

Once the register settings are defined, click ‘**Save**’.

The screenshot displays the 'Registers > Test Risk Register Register > Risk Criteria' section. On the left, there's a sidebar with 'Settings' and 'Filters' sections. The 'Filters' section includes dropdowns for Areas (All), Stakeholders (All), Vessel Types (All), Categories (All), and SMS Owners (All). It also has a 'Sort by' dropdown set to 'Rank'. Below these are summary statistics: Highest Risk (5.39), Lowest Risk (0.76), Average Risk (# 3.34), Hazards (26), Controls (48), and Incidents (20). The main area is titled 'Register Settings' and contains fields for 'Register Name' (Test Risk Register), 'Register Group (Optional)' (Test Group), 'Register Start Date' (1 July 2014), 'Baseline Risk Assessment Date' (22 July 2014), 'Rank Hazards by' (Residual risk), 'Display Live Risk Reduction' (Active), 'Saving Edits Require Audit' (Yes), 'Lock Status' (Unlocked), and 'Actions' (Active). A 'Save' button is at the bottom right.

Figure 4: Register settings.

4.2 MATRIX SETTINGS

The matrix settings tab (**Figure 5**) allows customisation of your risk register including tailoring the layout of the risk matrices that appear in the register. You can increase and reduce the number of ‘frequency’ and ‘consequence’ levels that appear on the matrices, as well as changing their direction to meet specific conventions. Once the matrix settings are determined, click ‘**Save**’.

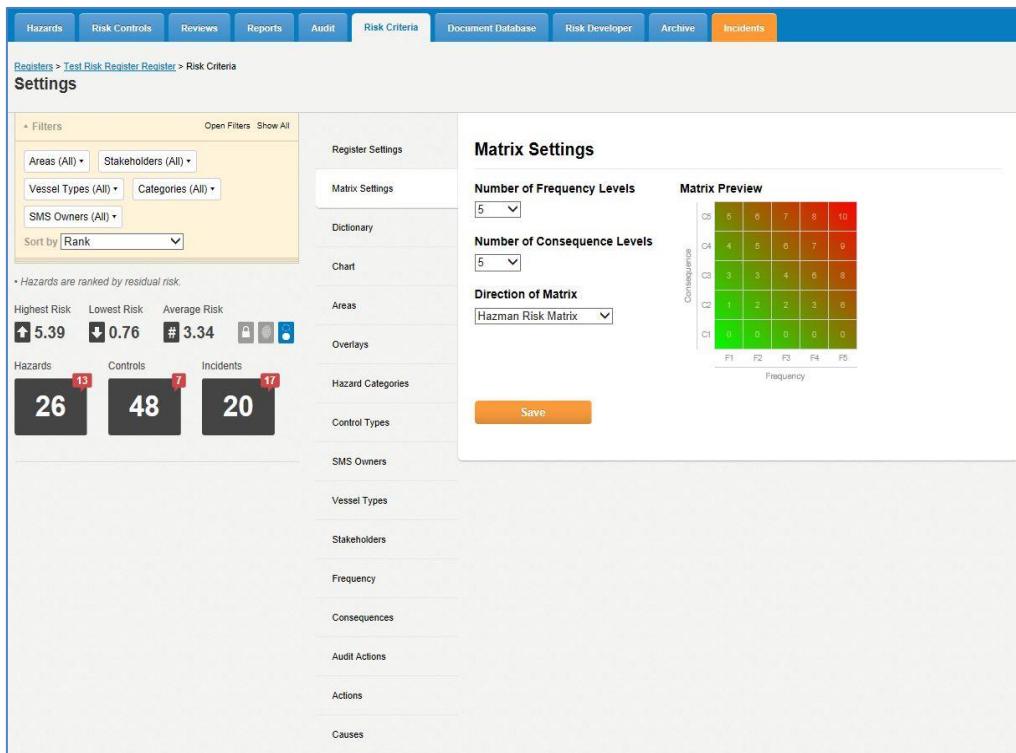


Figure 5: Risk matrix settings.

Important: Although Hazman supports custom risk matrix combinations, there are national and international conventions regarding recognised setups. In particular we recommend a 5x5 or alternatively 3x3 or 6x6.

4.3 DICTIONARY

The dictionary enables you to alter the names of criteria within your risk register to make the programme more suitable for your needs; you could, for example, rename 'resource' to 'vessel type' for the marine industry as in **Figure 6** below. Note that currently the only items you are able to name are 'Resource' and 'Sub Resource'. Click '**Save**' once you have inputted your resources.

Dictionary	
Term	Translation
Resource	Vessel
Sub Resource	Sub Vessel

Save

Figure 6: Risk criteria dictionary.

4.4 CHART

The Chart section (**Figure 7**) displays a Google map from which you are able to find and save your location. Use the zoom tool and navigation tool on the left of the map or left click the map and use your mouse to drag to your desired location before pressing the '**Save Location**' button.

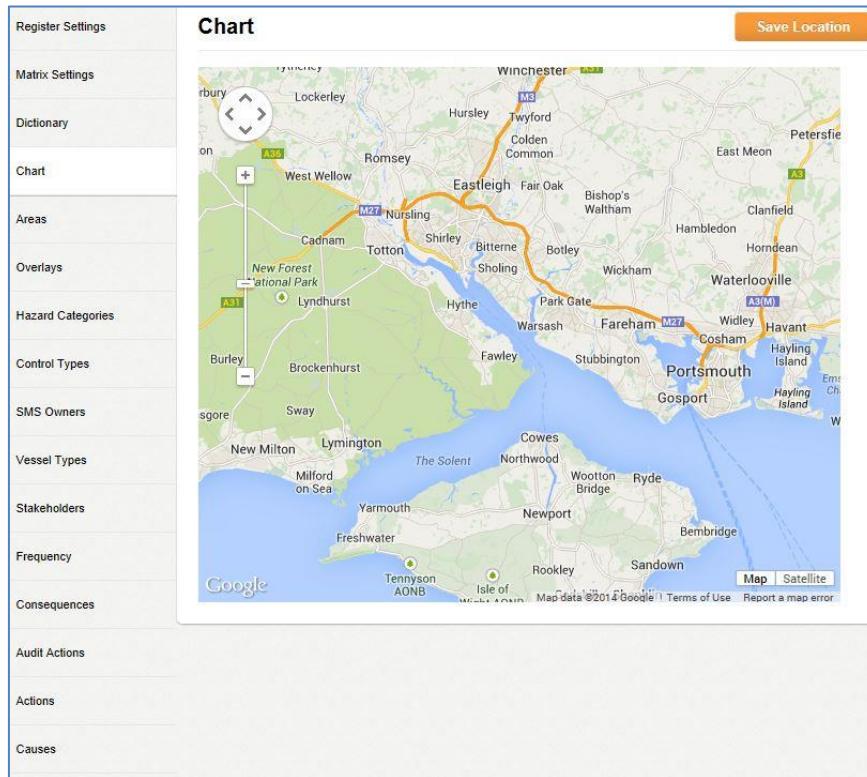


Figure 7: Chart tab inside Risk Criteria.

4.5 AREAS

This section allows you to add, edit and delete incident areas from the criteria. To add an area, click on the '**Add Area**' icon (see **Figure 8**).

Register Settings	Areas
Matrix Settings	Add Area
Dictionary	
Chart	Area
Areas	A - Harbour Approach
Overlays	B - Harbour Entrance
Hazard Categories	C - Main Channel
Control Types	D - Secondary Channel
	E - Inner Harbour
	F - Offshore Waiting Anchorage
	G - Offshore SBM

Figure 8: Risk Criteria Areas.

Hazman will load a dialogue box asking for the area's code and name. The area function supports Google Maps for defining specific areas; however this functionality currently *only* affects the Incident Database modules. You are able to draw the area on the Google Map chart by clicking twice on the chart to create three points. These points can be dragged to form a polygon (see **Figure 9**). New points will be created as you drag a point to allow you to create your desired shape.

Add Area

Code	<input type="text" value="1"/>
Name	<input type="text" value="Test Area"/>
Chart	<div style="text-align: right;">Reset</div>
<input type="button" value="Save"/> or <input type="button" value="Cancel"/>	

Figure 9: Add Area.

After you have created your area, click '**Save**'. Your new area will now appear in the list. To edit or delete an area, click on the entry that you wish to change and an 'Edit Area' dialogue box will open (**Figure 10**). To delete an area, click the '**Delete**' button in the bottom right corner of the box.

Edit Area

Code
1

Name
Test Area

Chart Reset



Save or Cancel **Delete**

Figure 10: Edit Area.

4.6 OVERLAYS

This section allows you to add, edit and delete overlays from the Risk Criteria. It is recommended that you contact a Marico Consultant if you wish to make any changes to your overlays. You add an overlay by clicking on the '**Add Overlay**' icon (Error! Reference source not found.).

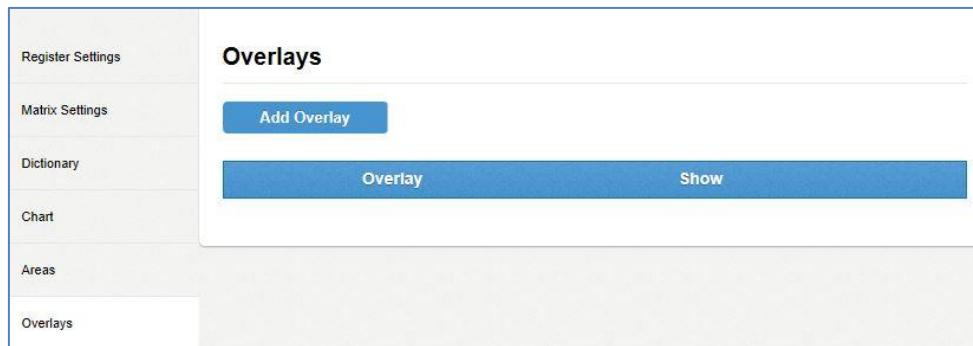


Figure 11: Risk Criteria Overlays.

Hazman will load a dialogue box asking for the overlay's name, the image file and the .tfwx file of the image (**Figure 12**).

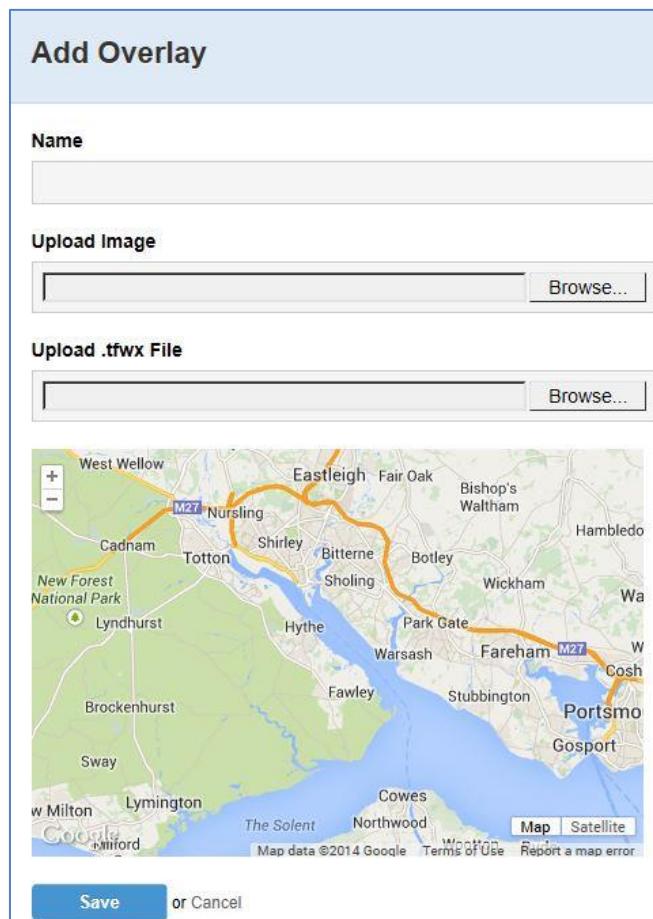


Figure 12: Add Overlay dialogue box.

Once these have been entered, click '**Save**'. Your new overlay will now appear in the list. To edit or delete an overlay, click on the entry that you wish to change and an 'Edit Overlay' box will open. To delete an overlay, click the '**Delete**' button in the bottom right corner of the box. You are able to

select which overlays are displayed by ticking the 'Show' check box alongside the overlay's name (Figure 13).

Overlays		
Add Overlay		
Overlay	Show	
Overlay 1	<input checked="" type="checkbox"/>	
Chart 2	<input checked="" type="checkbox"/>	
Overlay 2	<input checked="" type="checkbox"/>	

Figure 13: Overlays tab.

The order of overlays can be changed by clicking the button with three horizontal lines:  and dragging the overlay to the desired position.

4.7 HAZARD CATEGORIES

From here you are able to add, edit and delete the categories that are used to group hazards together. To add a new category, click on the 'Add Hazard Category' icon (Figure 14).

Hazard Categories	
Add Hazard Category	
Hazard Category	# Hazards Assigned
Collision	13
Contact Berthing	0
Contact Navigation	0
Environmental Damage	1
Fire\Explosion	5
Floundering	0
Grounding	3
Personal Injury	3
Pollution	4

Figure 14: Risk Criteria Hazard Categories.

Hazman will load a new window to permit the creation of a new category. Enter the name of the category, its abbreviation and the number of resources involved. You can have a maximum number of two resources involved in an incident. Once you have finished creating your new category click ‘Save’. The new hazard category will now appear in the list.

Important: When adding categories in the Risk Criteria there is a character limit for the Abbreviation field (the limit is 10) and the character length must not be zero.

To edit or delete a hazard category, select the item you wish to edit/delete by clicking its name in the list. An ‘Edit Hazard Category’ pop-up window will load (see **Figure 15**) in order for you to make changes to the category.

The dialog box has a light blue header bar with the title 'Edit Hazard Category'. Below it is a white form area with three input fields. The first field is labeled 'Name' and contains the value 'Collision'. The second field is labeled 'Abbreviation' and contains the value 'COL'. The third field is labeled 'Vessels Involved' and has a dropdown menu showing 'Two'. At the bottom of the dialog box are two buttons: a yellow 'Save' button on the left and a red 'Delete' button on the right. Between them is the text 'or Cancel'.

Figure 15: Risk Criteria Edit Hazard Category.

If you wish to delete the category, click on the red ‘Delete’ icon in the bottom right corner of the window. Please take care when deleting items; once you proceed with the action, it is not possible to recover the hazard category. The edit window will be populated with the current information it holds on the item. To change an entry click on the dialogue box containing the information you wish to modify and overwrite it with the revised data. Once you have finished editing the item, be sure to click the ‘Save’ icon at the bottom of the window to confirm the changes you have made.

4.8 CONTROL TYPES

Within the ‘Control Types’ tab you are able to create and modify control types. To add a new control type, click on the ‘Add Control Category’. Hazman will load a pop-up window requiring you to provide a name for the new category and a suitable abbreviation (optional). Once completed click

the ‘Save’ icon at the bottom left of the window and your new control type will be saved ready to use.

To edit or delete a control type, select from the list by clicking on the item. Hazman will load a pop-up window (see **Figure 16**) to allow the user to make alterations to the control type. After you have finished making changes to the item, click ‘Save’ and the new information will be updated. To delete the item click the ‘Delete’ button at the bottom right of the screen.

The form is titled 'Edit Control Type'. It contains two input fields: 'Name' with the value 'Vessel Traffic Services' and 'Abbreviation' with the value 'VTS'. At the bottom, there are three buttons: a yellow 'Save' button, a grey 'Cancel' button, and a red 'Delete' button.

Figure 16: Risk Criteria Edit Control Type.

4.9 SMS OWNERS (NAVIGATION REGISTER) / RESPONSIBLE PERSONS (HEALTH AND SAFETY AND CORPORATE REGISTERS)

Here you are able to add, change and delete existing ‘SMS Owners’ / ‘Responsible Persons’ within the register. A SMS owner who is assigned to manage a hazard or control will be able to complete reviews and make necessary changes to hazard and control details keeping them up to date. To add a new SMS Owner to the list, click on the ‘Add SMS Owner’ icon. A pop-up window will appear asking for the SMS Owner name, organisation responsible and user responsible. Click ‘Save’ to add the new SMS Owner. A SMS Owner can be edited or deleted by clicking on the name and making the appropriate changes.

4.10 VESSEL TYPES (NAVIGATION REGISTER) / RESOURCE TYPES (HEALTH AND SAFETY AND CORPORATE REGISTERS)

Here you are able to add, change and delete existing resource types within the register (or vessel types in navigation registers). To add a new ‘Resource Type’ to the list, click on the ‘Add Resource Type’ icon. A pop-up window will appear (**Figure 17**) asking for the resource type name, click ‘Save’ to add the new resource type. A resource type can be edited or deleted by clicking on the name and making the appropriate changes. Sub-types can be manipulated in exactly the same way.

Add Resource Type

Resource Type

Sub Resource Types

Sub Resource Type
Add a Sub Resource below.

Add Sub Resource Type

Sub Resource Type

Save Sub Resource Type

Save or Cancel

Figure 17: Risk Criteria Add Resource Type.

4.11 STAKEHOLDERS

Here you are able to add, change and delete existing ‘Stakeholders’ within the register. To add a new Stakeholder, click on the ‘**Add Stakeholder**’ icon. A pop-up window will appear, asking for the stakeholder’s name, and person responsible. Click ‘**Save**’ to add the new stakeholder. An existing stakeholder can be edited or deleted by clicking on the name and making the appropriate changes.

4.12 FREQUENCY

The ‘Frequency’ tab of the risk criteria module enables the user to make alterations to the frequency scales in the risk assessment area of Hazman. The number of frequency options is controlled in Matrix Settings (**Section 4.2 Matrix Settings**). To change the frequency descriptions click on the dialogue box of the entry you wish to alter and type in the desired replacement (see **Figure 18**).

Register Settings	Frequency
Matrix Settings	Frequency Descriptions
Dictionary	F1 Rarely More Detail
Chart	F2 Unlikely More Detail
Areas	F3 Possible More Detail
Overlays	F4 Probable More Detail
Hazard Categories	F5 Frequent More Detail
Control Types	
SMS Owners	
Vessel Types	
Stakeholders	Save
Frequency	
Consequences	
Audit Actions	
Actions	
Causes	

Figure 18: Risk Criteria Frequency.

4.13 CONSEQUENCES

From this area, you are able to add, edit and remove ‘Consequence’ criteria used in the hazard risk assessment process of Hazman.

To add a new consequence category, click the ‘**Add Consequence Classification**’ icon. A window will appear (**Figure 19**) requiring you to provide a name for the new consequence, an abbreviation, and a suitable label for each consequence category (C1 being the lowest Consequence, through to C5 being the highest Consequence). Once you have finished this step, click the ‘**Save**’ icon at the bottom left of the window to create the new consequence classification.

Consequence	
Name	Property
Abbreviation	PR
Consequence Descriptions	
C1	Negligible (Under £10k) More Detail
C2	Minor (£10k to £100k) More Detail
C3	Moderate (£100k to £1 M) More Detail
C4	Major (£1-£10 M) More Detail
C5	Catastrophic (>£10 M) More Detail
Save or Cancel Delete	

Figure 19: Risk Consequence Criteria.

To make changes to a consequence class, click on the item you wish to change and Hazman will load a window populated with the current information for the item. To change any aspect of the class, click your cursor into the text box containing the information that you wish to change, delete and overwrite it. After you have made the desired changes to your class, be sure to click the '**Save**' icon in the bottom left of the window to confirm the changes. Deleting a class is done by clicking on the desired class and clicking on the '**Delete**' icon in the bottom right of the window.

4.14 AUDIT ACTIONS

Audit Actions can be created by clicking the '**Add Audit Action**' icon (see **Figure 20**). You are then able to input the description of the Audit Action and the Audit Text, click the '**Save**' once you have finished. You may click the '**Reset**' button to return to the default audit actions if desired.

Audit Actions	
Add Audit Action Reset	
Description	Audit Text
Blank	
Audit Compliant	Audit indicates compliance with active risk controls.
Audit Conformance	Audit Conformance Risk Controls operates as expected.
Audit Exception	An agreed exception to a risk control occurred.
Audit Observation	Audit Conformance Risk Controls operates as expected, 1 or more risk controls could be improved.
Contract Review	A review by commercial management (Supplier & Customer)
Legal	Legal requirements confirmed to be operating.
Manag. Review	A review by business management.
Non Conformance	Failure of review to agree conformance.

Figure 20: Risk Criteria Audit Actions.

4.15 ACTIONS

The Actions tab will only appear if you have chosen the Actions to be active under the Register Settings tab in the Risk Criteria. You are able to add an Action by clicking the '**Add Action**' icon (see **Figure 21**). Once you have filled in the fields click the '**Save**'.

Actions			
Add Action Reset			
From Score	To Score	Category	Action
0	2	Negligible Risk	Periodic review.
2	4	Low Risk	Regular review.
4	6	ALARP	Review risk control options and monitor.
6	8	Significant Risk	Identify additional mitigation measures.
8	10	High Risk	Immediate mitigation required.

Figure 21: Risk Criteria Actions tab.

You may click the '**Reset**' button to return to the default actions if desired.

4.16 CAUSES

The Causes tab allows the user to make a cause check list which can be selected from when attributing possible causes to hazards. Press the '**Add cause**' button and enter the cause's name and category before clicking the '**Save**' button.

5 FILTER AND INFORMATION TOOLBAR

The Filter and Information Toolbar is located on the left hand side of the Register's home screen.

5.1 FILTER

Hazman has a built-in filter to allow you to filter hazards and controls by:

- Area;
- Stakeholders affected;
- Vessel type;
- Incident category; or
- SMS owner.

It is also possible to sort hazards by:

- Rank;
- Hazard reference;
- Hazard title;
- Category;
- Risk by business;
- Risk by environment;
- Risk by people; and
- Risk by property.

The Filter is shown in **Figure 22** below:

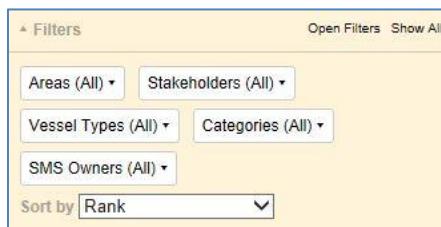


Figure 22: Filter.

By pressing 'Open Filters' you can see all of the filters available and can tick which items you wish to filter by. Clicking the '**Save**' button will implement your filter. Implementing a filter will limit the hazard list and re-score all the statistics in the information toolbar. Note that you can apply a filter while you are not on the hazard page. If you do apply a filter while on another page you can see the

filter's results in in the Information Toolbar (**Section 5.2**), or in the Hazard List. To clear an applied filter, click 'Show All'.

5.2 INFORMATION TOOLBAR

The information toolbar provides you with statistical information about your hazard list and risk controls (see **Figure 23**). Highest/lowest/average risk values of the hazards populating your list are available at a glance as well as an overall count of the total number of hazards and controls populating your lists. If you have subscribed to the Incident database the total number of incidents can also be found here.

In the top-right corner there are three icons: a padlock, a fingerprint, and two circles. If the padlock is highlighted it means that the register is locked. The fingerprint signifies that the audit function is on when highlighted. The two circle icon shows that the register is displaying live risk reduction if it is highlighted.

The risk plot will also refresh itself when a filter is determined by the spread of each individual hazard under that category. Think of it like a scatter plot which has had all the plots joined up by their 'type'. Risk is a product of the 'likelihood' and 'consequence' of a hazard occurring and the matrix will update depending on the user's input scores.

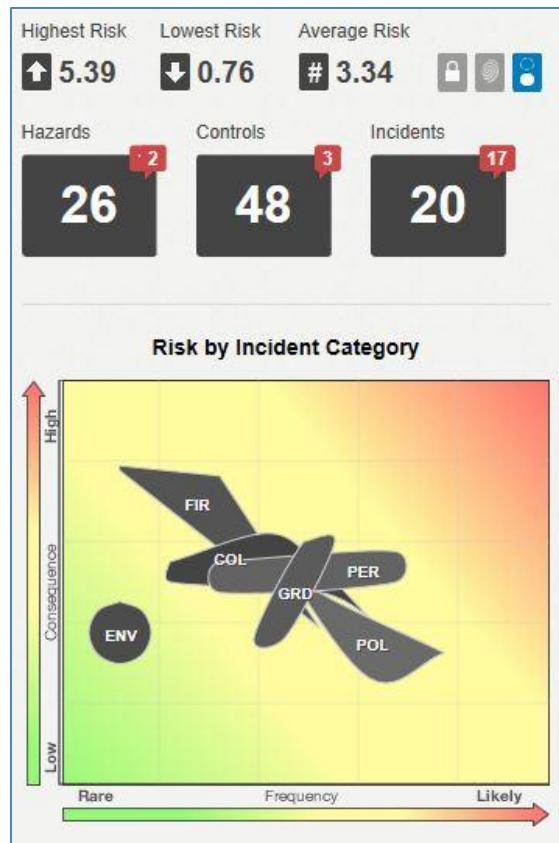


Figure 23: Information Toolbar and Risk Map.

When hazards and / or controls come up for review the information bar will indicate the number of items in the lists requiring attention (this is also true of incidents if you have an incident database). It will show this by adding a red icon in the top right hand corner of the box which requires addressing. Using **Figure 23** as an example the information toolbar is indicating that there are two hazards, three controls and seventeen incidents requiring attention. To directly jump to the reviews, click on the red number icon.

6 HAZARDS TAB

The ‘Hazards’ page enables you to manage all the hazards within the risk register.

6.1 HAZARD LIST

The hazard list (**Figure 24**) is populated with hazards within the risk register that you currently have open. If a filter is applied, only those hazards that fulfil the filter criteria are displayed. To turn off this filter, click the ‘Show All’ icon in the top right corner of the filter (**Figure 22**).

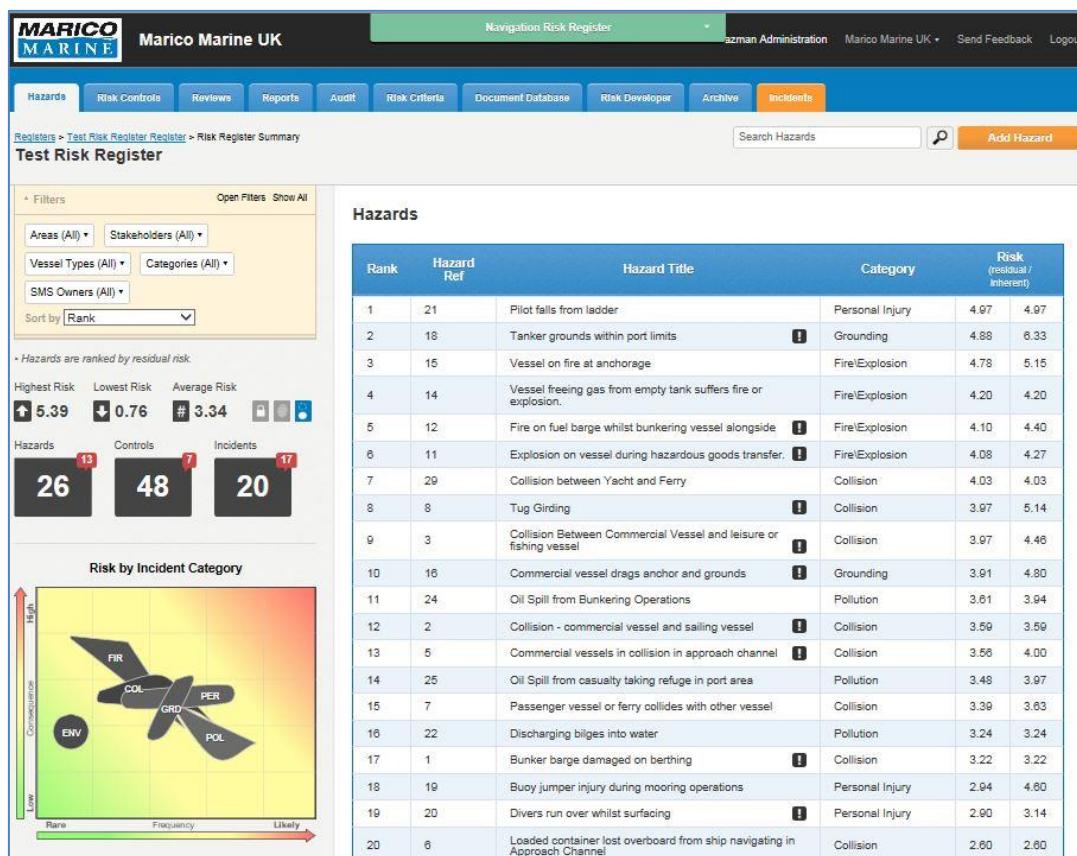


Figure 24: Hazard list.

6.2 VIEWING A HAZARD

To get more information on a particular item in the Hazard list click on the hazard you wish to view. A list of ‘risk controls’ attached to that hazard and ‘possible causes’ will then drop down from the list. The user can either view the full hazard details *or* jump to the edit hazard functionality by selecting the corresponding links.

6.3 ADDING A HAZARD

To add a hazard to the register, click the '**Add Hazard**' icon. Hazman will then redirect you to new hazard user interface.

Important: As you proceed through the tabs the information entered will not be saved until you press the save button. To avoid losing your work, please ensure that you save often and do not click on another tab or press the back button in your browser.

6.3.1 Hazard Description

This section provides you with an area to give a detailed account of the new hazard:

- The 'Hazard Title' box;
- 'Hazard Detail' dialogue box allows you to enter a brief description regarding the hazard;
- The 'Possible Causes' dialogue box is where you can select from the tick-boxes and list in the dialogue box all the possible causes of a hazard;
- The 'Remarks' area is provided for you to enter any additional information that may be relevant;
- The 'Most Likely Outcome' should list all possible consequences of a hazard occurring in its 'most likely' case; and
- The 'Worst Credible Outcome' should list all possible consequences of a hazard occurring in its 'worst credible' case.

You can click the '**Next**' button to move onto the next tab when creating a hazard or you can select the next tab from the list on the left of the screen.

6.3.2 Hazard Information

The basic facts regarding your new hazard should be entered in this section. You are provided with drop down menus and check boxes in this section that can be changed or added to in the 'Risk Criteria' tab (**Section 4**). All of the specified fields can be used in the filter menu.

- 'Hazard Category' specifies the type of hazard;
- 'Areas affected' allows you to specify where the hazard applies;
- 'Stakeholders affected' allows you to specify which stakeholders the hazard impacts upon; and
- The 'Resource Type' or 'Vessel Type' specifies the parties involved in a hazard.

6.3.3 Assessed Risk

The ‘Assessed Risk’ tab allows you to quantify the hazard’s position on the risk matrix (**Figure 25**). The risk is assessed in terms of ‘frequency’ and ‘consequence’, in terms of the ‘most likely’ outcome and the ‘worst credible’ outcome.

Alongside the risk matrix is the text outcome description you previously entered to help you correctly assess the risk. Hazman utilises both a sliding scale and a number entry system to fine tune your assessment scores. The descriptions of each level are customisable and can be altered in the ‘Risk Criteria’ tab (**Section 4**).

Assessed Risk

Risk Assessment Baseline Date

Most Likely

C5	5	6	7	8	10
C4	4	5	6	7	9
C3	3	3	4	6	8
C2	1	2	2	3	6
C1	0	0	0	0	0

Consequence

Frequency

Snap **Most Likely Outcome**

F1	F2	F3	F4	F5
----	----	----	----	----

Worst Credible

C5	5	6	7	8	10
C4	4	5	6	7	9
C3	3	3	4	6	8
C2	1	2	2	3	6
C1	0	0	0	0	0

Consequence

Frequency

Snap **Worst Credible Outcome**

F1	F2	F3	F4	F5
----	----	----	----	----

Snap **Most Likely Frequency**

Frequency	One or more times in <input type="text" value="10,000"/> years.	<input type="button" value="1"/>
-----------	---	----------------------------------

Snap **Worst Credible Frequency**

Frequency	One or more times in <input type="text" value="10,000"/> years.	<input type="button" value="1"/>
-----------	---	----------------------------------

Most Likely Consequence

Business	Negligible	<input type="button" value="1"/>
Environment	Negligible	<input type="button" value="1"/>
People	None	<input type="button" value="1"/>
Property	Negligible (Under £10k)	<input type="button" value="1"/>

Worst Credible Consequence

Business	Negligible	<input type="button" value="1"/>
Environment	Negligible	<input type="button" value="1"/>
People	None	<input type="button" value="1"/>
Property	Negligible (Under £10k)	<input type="button" value="1"/>

Figure 25: Assessing a Hazard’s risk.

The first step is to set the date of your baseline risk assessment, the date the hazard was scored. Once clicked, a pop up calendar will appear defaulting to show today’s date; select a day to confirm.

The ‘Most Likely’ and ‘Worst Credible’ matrices will then need to be scored. Each frequency and consequence scale has multiple entry methods. With the ‘Snap’ box selected, the user can move the slider by holding down the left mouse button and moving left or right between the categories. As

the slider moves the position of the blue boxes on the matrix and the raw scores will also move in sync. By de-selecting the ‘Snap’ button the scale becomes continuous allowing fine tuning to specific values. Furthermore the user can enter a ‘raw score’ into the furthest right box with 1 being the lowest permissible score.

6.3.4 Risk Controls

The ‘Controls’ section allows you to attach controls that would mitigate the ‘consequence’ and/or the ‘frequency’ of the hazard. From this section you are able to create and attach a new control by clicking on the ‘**New Control**’ icon and adding it to the risk register which can then be applied to other hazards (**Figure 26**). Alternatively you can attach an existing control already in the register (by clicking the ‘**Attach Existing Control**’ icon).

Controls									
		New Control		Attach Existing Control		Reset Effectiveness		Risk Assessment Date: 24 July 2014	
Control		Date Applied		Baseline Risk ⓘ			Residual Risk ⓘ		
Sample Control	24 July 2014	Included in Baseline Risk Assessment (remove)			Current Effectiveness (remove)			(delete)	
		Freq. Eff.	20	%	Cons. Eff.	0	%		
Sample Control 2	1 July 2014	Included in Baseline Risk Assessment (remove)			Risk Reduction unchanged (add)			(delete)	
		Freq. Eff.	0	%	Cons. Eff.	0	%		

Figure 26: Risk Control Entry.

Each control can be rated in terms of effectiveness at reducing the consequence of a hazard, or the probability of the hazard occurring. The assessed risk score is then modified with the risk control measures taken into account to produce a modified risk score. When adding a new risk control it is best to add a ‘Date Applied’ that will allow Hazman to graph the change in risk over time in the ‘View Hazard’ section.

Risk reduction is covered in detail in **Section 15**.

6.3.5 Reviews

It is important that your risk assessment is regularly reviewed to account for any changing conditions in your organisation. Hazman incorporates a regular review feature which can be specified for hazards and risk control measures. To set a review date for the hazard, click in the ‘Next Review Date’ field and select a date from the drop-down calendar. A SMS Owner / Responsible Person can be selected from a drop-down list. You must also set a frequency for review on the hazard. This

frequency will remind you to review the hazard the given length of time after the calendar date of creation.

6.3.6 Viewing a Hazard

To view all details on the item, click on the ‘View Hazard’ icon in the top right corner of the hazard. Hazman will then redirect you to the hazard analysis page (**Figure 27**). This page provides the user with all the available information regarding the hazard in a clear and concise format.

The audit log presents a list of all changes made to this specific hazard when the auditing functionality is enabled (**Section 4.1**). The forwards / backwards arrows below the edit / edit risk button allow you to quickly move between hazards, otherwise the hazard reference number or text can be entered in the ‘Search Hazards’ box.

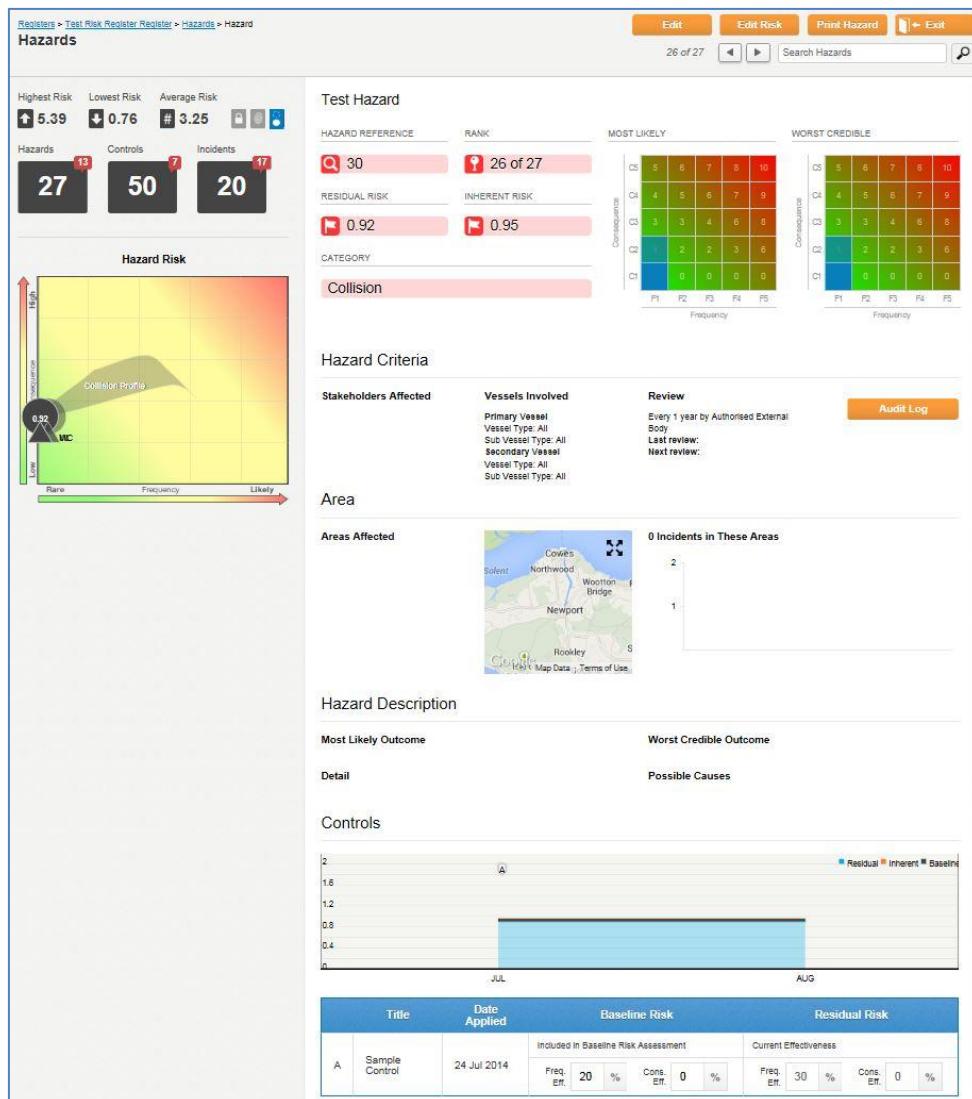


Figure 27: View Hazard.

6.3.7 Printing the Hazard

To make it easy for you to present and distribute information, Hazman is able to convert hazard detail into a print and email friendly PDF copy. This can be done by clicking on the '**Print Hazard**' icon in the top right of the screen (**Figure 27**: View Hazard.). To print hazards as a collection see **Section 9** for the Hazard Detail Report or **Section 8** for those hazards with outstanding reviews.

6.4 MODIFYING A HAZARD

In order to make changes to a hazard, navigate to the 'view hazard' page (**Figure 27**). Once you are on this page click on the '**Edit**' icon which can be found in the top right corner of the screen. You can also edit the hazard from the hazard list by selecting the hazard and clicking the '**Edit Hazard**' icon.

Hazman will load a hazard setup page to assist you in making the required alterations to the hazard. This setup page is the same layout as the create hazard page (**Section 6.3**).

7 RISK CONTROLS

A risk control is a mitigation measure that reduces the ‘frequency’ or ‘consequence’ of a hazard’s occurrence, thereby reducing the risk score. Under the ‘Risk Controls’ tab you are able to manage all of the controls within the register.

7.1 RISK CONTROL LIST

The ‘Risk Control’ list is where all the controls contained in the register are provided. It can be found by navigating to the ‘Risk Controls’ tab in the top left of your browser window (**Figure 28**). The list displays all risk controls in your register, including the number of hazards that they are applied to. To get more information on a risk control, click on the Risk Control title in the list.

If all of the controls for the register do not appear in the list, ensure that the filter is not activated. To turn off a filter, click the ‘Show All’ icon in the top-right of the filter. The list will now be populated with all controls contained in the register.

The screenshot shows the 'Risk Register' application interface. At the top, there is a navigation bar with tabs: Hazards, Risk Controls (which is selected and highlighted in orange), Reviews, Reports, Audit, Risk Criteria, Document Database, Risk Developer, Archive, and Incidents. Below the navigation bar is a search bar labeled 'Search Hazards' and an 'Add Control' button. The main area is titled 'Risk Controls' and contains a table with three columns: 'Control', 'Type', and 'Hazards'. The table lists various risk controls such as Aids to Navigation, AIS system, Buoy Jumper PPE, etc., along with their respective types and the number of hazards they apply to. On the left side of the main area, there is a sidebar with filters for Areas, Stakeholders, Vessel Types, Categories, and SMS Owners. It also includes buttons for Sort by Rank, Hazards, Controls, and Incidents, and numerical values for 5.39, 0.76, and 3.25. Below the sidebar, there is a note stating 'Hazards are ranked by residual risk'.

Control	Type	Hazards
Aids to Navigation	Aids to Navigation (Buoys, lights, etc.)	3
AIS system	Aids to Navigation (Buoys, lights, etc.)	4
Buoy Jumper PPE	Ext. Procedures / Hardware	1
Buoy Jumping Procedures	Port procedures	1
Channel Clearance Procedures	Harbour Patrol Craft	1
Contractors Safety Policy & Procedures	Ext. Procedures / Hardware	1
Diving Code of Practice	Training / Education	1
Emergency Response Plan	Emergency Response	11
Emergency Towage Vessels	Ext. Procedures / Hardware	3
Enforcement Patrols (Port Authority vessels)	Harbour Patrol Craft	2
Enforcement Policy	Local Legislation including Byelaws and General Directions	4
External recommendation	Professional Training/Competence	1
External Vetting	Ext. Procedures / Hardware	1
Fendering	Berthing Assistance	1
Fuel barge design	Ext. Procedures / Hardware	1
Fuel Barge Operating Procedures	Ext. Procedures / Hardware	1
Leisure Craft Operating Rules	Local Legislation including Byelaws and General Directions	4
Leisure craft refuelling procedures	Port procedures	1
Local Bye-laws	Local Legislation including Byelaws and General Directions	12
Local Emergency Services	Emergency Response	7
Local Licensing Scheme	Towage (Active/ Passive/Harbour)	2

Figure 28: Risk Controls list.

7.2 ADDING A CONTROL

In order to add a new control to the risk controls list, click on the ‘Add Control’ icon at the top-right of the screen. The page will load the tabs enabling you to add a control. Once you have finished

entering all the appropriate information regarding the risk control, click on the '**Save Control**' icon in the top right of the window.

7.2.1 Control Description

The 'Control Description' page is where you can:

- Set the control's title;
- Assign a description;
- Enter a SMS owner (navigation register) / Responsible Person (health and safety or corporate registers);
- The control's category; and
- The date the control was implemented.

You can specify a default baseline and residual consequence and frequency effectiveness that would be applied to all new hazards you link it to, although it is recommended you adjust the percentage on a case by case basis.

Enter all required information in the areas provided and then click the '**Next**' icon at the bottom of the page to continue to the next step of creating a control. You are also able to navigate through the risk control set-up by selecting the tabs on the left of the data input area.

7.2.2 Documents

On this page you are able to attach new and existing documents relevant to the control. To upload and attach a document from your computer, select the '**Upload Document**' icon (see **Figure 29**). Hazman will refresh and bring up a dialogue box in which you are able to specify the file's location on your computer as well as a title for the document in Hazman. You are able to add a web link by inserting a URL into the 'Add File from URL' box. Once you have provided the required details, click '**Save**' and Hazman will begin uploading the document from your computer.

If the document you wish to attach to the control has already been uploaded to Hazman, click '**Attach Existing Document**'. A dialogue box will then request you to specify which file you wish to attach; select the desired document and click the '**Save**' icon at the bottom of the box.

A list of documents you wish to attach to the control will appear in the documents list below the '**Upload Document**' and '**Attach Existing Document**' icons, these files will not be attached until you click the '**Save Control**' icon above the document list.

Control Description	Documents		
Documents	<div style="display: flex; justify-content: space-around;"> Upload Document Attach Existing Document </div>		
Hazards	Title	File Name	File Size
Reviews	There are no documents attached		

Figure 29: Risk Controls - Documents.

7.2.3 Attaching Hazards

In this section, you are able to attach existing hazards to the risk control. To do this, click the '**Attach Hazard**' icon, select the hazard you wish to attach when prompted by the pop-up and click the '**Save**' icon. The hazard will then appear in the list below the '**Attach Hazard**' icon. You are then required to set the 'frequency' and 'consequence' mitigation of the new control on the hazard that has been attached to it (see **Figure 30**). Type the perceived percentage of effectiveness the control has over the hazard and click the '**Save**' icon. You will then be redirected to the final step in creating a control.

Control Description	Hazards		
Documents	<div style="display: flex; justify-content: space-around;"> Attach Hazard </div>		
Hazards	Title	Baseline Risk	Residual Risk
Reviews	Bunker barge damaged on berthing	Included in Baseline Risk Assessment (remove) Freq. Eff. 0 % Cons. Eff. 0 %	Current Effectiveness (remove) Freq. Eff. 0 % Cons. Eff. 0 %
	Save		

Figure 30: Setting Frequency and Consequence.

7.2.4 Reviews

The Reviews section within the 'Add Control' modal is where you can set the next review date of your new risk control. As well as being able to set the review date and frequency of review, you can also assign the 'SMS Owner' / 'Responsible Person' within this section by selecting one from the drop-down list.

To set the review date of the risk control, click on the dialogue box under ‘Next Review Date’. Hazman will then load a calendar for you. Select the appropriate review date by clicking on the day in the calendar. Remember to press the **Save** once complete.

7.3 VIEWING A CONTROL

To view a control, navigate to the risk controls list by clicking the ‘Risk Controls’ tab in the top left of the window. If you know the name of the control you are looking for, you can search the name using the search function in the top right of your screen. Alternatively, you can search for it by using the filter (see **Section 5.1**) or by scrolling through your risk control list. Once you have found the control you are looking for, click on its entry in the control list to view more information.

7.4 EDITING A CONTROL

Editing a risk control is much the same process as creating a new control. To edit a control, click on the one you wish to make changes to from the risk controls list. Hazman will then load a page containing more information on the control and from this page you are able to access the edit function. To enter the edit function, click on the **Edit Control** icon in the top right corner of the screen. Follow the same process when editing the control as you would if you were creating a new one, more information is available in **Section 7.2**.

8 REVIEWS

From the ‘Reviews’ tab, you are able to manage hazards and controls that come up for review. When an item comes up for review, it will appear here marked in red, if the review date is within the month then the review is marked in black. The information bar on the Hazards tab will indicate when a hazard or a control is up for review (see **Section 5.2**).

8.1 REVIEWING HAZARDS

All hazards requiring review will appear in date order for the user to complete a review (**Figure 31**).

Hazard Ref	Hazard	Rank	Review by	Next Review
2	Collision - commercial vessel and sailing vessel	12	Harbour Master	10 Jun 2014
8	Tug Girding	8	Designated Person	10 Jun 2014
12	Fire on fuel barge whilst bunkering vessel alongside	5	Harbour Master	11 Jun 2014
23	Fuel spill from leisure craft during refuelling	27	Harbour Master	12 Jun 2014
18	Tanker grounds within port limits	2	Harbour Master	27 Jun 2014
16	Commercial vessel drags anchor and grounds	10	Harbour Master	27 Jun 2014
17	Local passenger ferry runs aground	24	Harbour Master	27 Jun 2014
5	Commercial vessels in collision in approach channel	13	Harbour Master	14 Jul 2014
11	Explosion on vessel during hazardous goods transfer.	6	Harbour Master	24 Jul 2014

Figure 31: Hazard Reviews.

You can press the ‘Print Hazards due for Review’ button which will create a PDF file of all of the hazards due for review. To review a hazard, click on the appropriate hazard. Hazman will then take you to the hazard overview page, with the option to change the hazard or mark as reviewed. If you click on ‘Mark as Reviewed’ a review checklist (**Figure 32**) will pop up requiring you to specify the changes you have made to the hazard. The information entered into this page will be used to track your risk assessment through the auditing function. Complete the form, tick the ‘Complete Review’ checkbox and click the ‘Save’ icon at the bottom of the page to complete the review.

Action Taken

User
Harbour Master

Action Taken
Select One

Any Procedural Audit Undertaken? Yes No

Results

Complete Review for date: 10 June 2014

Save or Cancel

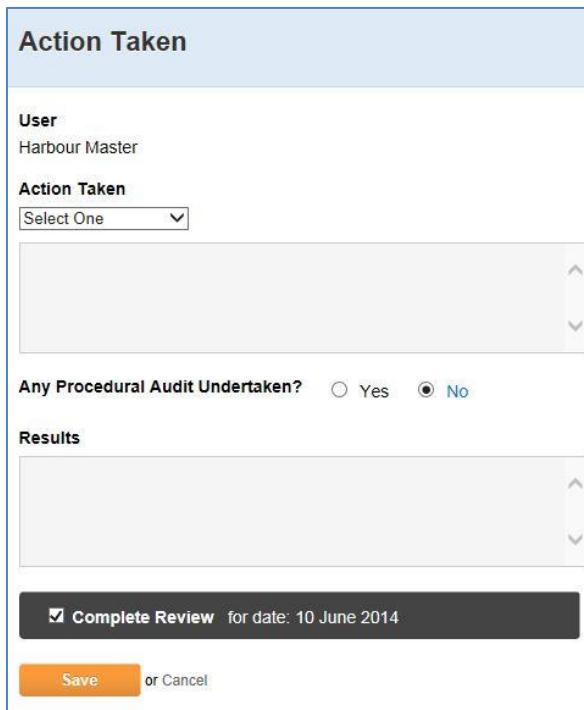


Figure 32: Mark as Reviewed.

8.2 REVIEWING CONTROLS

To review a control, you need to navigate to the ‘Control Reviews’ page. Click on the reviews tab and then the ‘Controls’ icon to the right of the information bar. You will then be presented with a list of the controls that require reviewing. To review a control, click the one you wish to review and Hazman will redirect you to the control overview page. If you believe nothing requires changing click the ‘Mark as Reviewed’ icon at the top of the page. Alternatively, if it is appropriate to make changes to the control, click the ‘Edit Control’ icon. Hazman will redirect you to the ‘Edit’ function (see **Section 7.4**). Once you have made the required alterations to the control, click the ‘**Save Control**’. There will then be a review checklist pop up requiring you to specify the changes you have made to the control. Complete the checklist, tick the ‘Complete Review’ checkbox and click the ‘**Save**’ icon at the bottom of the page to complete the review.

9 REPORTS

Hazman II comes with the ability to generate summary reports for each risk register and are classified by three types: ‘Organisation Reports’ (**Section 9.1**), ‘Reviews Reports’ (**Section 9.2**) and ‘Risk Reports’ (**Section 9.3**). These reports can be viewed in Hazman itself, or alternatively, you can export them to PDF, XML or DOCX files and view them using third party software. To save any report you have made in Hazman, you can either publish it in the register (**Section 9.4**), or export it (**Section 9.5**).

You are able to apply filters to any current report viewed in Hazman so you can search for items of interest efficiently or limit the risk register for comparison. Your report items can be filtered either by:

- Area;
- Incident category;
- Stakeholders;
- Vessel type(s) / Resource type;
- SMS Owner / Responsible Person.

9.1 ORGANISATION REPORTS

The ‘Organisation Report’ allows you to select multiple registers and create a report displaying their hazards, inherent risk, residual risk, and mitigation effectiveness.

9.2 REVIEWS REPORTS

The ‘Review Reports’ section enables you to create a report on the hazard reviews or the risk control reviews within your register. To create a report, click on the item (hazard reviews or risk control reviews) the page will refresh and a report on the desired item will be loaded.

9.3 RISK REPORTS

The ‘Risk Reports’ section enables you to create the following reports:

- ‘Risk Rank Summary’ – A brief summary of the risks, ordered by their rank score;
- ‘Ranked Hazard List’ – Full ranked hazard list with all information on hazards, ordered by their rank score;
- ‘Risk Data’ – A list of the risks and their input scores;

- ‘Risk Comparison’ – Select a date for the first and second risk assessments, the change in overall risk score between these two assessments will be displayed;
- ‘Risk Controls’ – Summary list of all risk controls;
- ‘Geographical Areas’ – Summary list of all geographical areas used in the risk register;
- ‘Hazard Detail’ – Full details on each hazard, use the filters to narrow the selection;
- ‘Audit Report’ – List of all audit activities that have been undertaken and
- ‘Actions’ – A summary of the actions given to hazards.

9.4 PUBLISHED REPORTS

You are able to publish any of the reports generated by Hazman. Publishing reports allows you to save your report in the risk register, enables you to keep a record of your organisation’s risk management progress and export (see **Section 9.5**) any of these reports at a later date for the purpose of data comparisons. To publish a report you must first generate the desired report, to do this click on the reports tab to navigate to the reports page. Once there click on the report you want to generate and Hazman load your new report. To publish the report, click on the ‘**Publish**’ icon in the top right corner of the screen. All published reports can be found in the ‘Published Reports’ section at the bottom of the reports page.

9.5 EXPORTING REPORTS

For ease of viewing, sharing and processing the data provided by Hazman, we have made it possible for you to export your reports as PDFs, Excel files and Word documents. While viewing the report in Hazman click on the ‘**Export to...**’ icon that creates the format you want. These icons are located in the top right of your screen below the navigation tabs. Your report will be converted into your chosen format and then begin downloading.

10 AUDIT

Hazman is not only a risk assessment tool, but offers the functionality to maintain and periodically review your organisational risk. Once the risk register is in audit mode (activated in the **Risk Criteria** tab) any changes you make to the register will be recorded in this section. When hazard and control entries are edited or reviewed, an entry is made in the ‘Audit’ section to provide users with an extensive record of the activity of users within the register (see **Figure 33**).

Important: It is recommended that the Auditing function in Risk Criteria is enabled only after you have setup your risk register for the first time. The initial configuration can be time consuming with auditing already enabled.

The information in the audit log shows the date of the action, type of action taken, by whom, which hazard or risk control the action was taken on and a user entered description of their action.

Date	Type	Action	User	Title	Description
24 Jul 2014	Hazard	Reviewed	Hazman Administration	Tanker grounds within port limits	24 Jul 2014, reviewed
24 Jul 2014	Hazard	Deleted	Hazman Administration	Test Hazard	
24 Jul 2014	Control	Deleted	Hazman Administration	Test control	
24 Jul 2014	Control	Deleted	Hazman Administration	Sample Control	
24 Jul 2014	Control	Deleted	Hazman Administration	Sample Control 2	
22 Jul 2014	Hazard	Deleted	Hazman Administration	Test hazard on 15th July	

Figure 33: Audit Log in Hazman II.

The actions undertaken while in audit mode can be exported using the functionality of the report tab.

11 MANAGING YOUR ORGANISATION

Each Hazman user is a member of an organisation. The organisation holds a list of users and risk registers applicable to that organisation, and the organisational home page is the first page you will see after login. Please note that a number of these features are only available to subscribers of the Premium package.

11.1 MANAGING USERS (ADMINISTRATORS ONLY)

Users who have been provided with an administrator role on Hazman are able to manage users within the organisation. These administrators have the rights to add new users, edit existing users and remove users.

11.1.1 Adding a User

From the organisation home page, select the ‘Users’ tab and click the ‘**Add User**’ icon. You will then be redirected to an ‘**Add User**’ dialogue box (**Figure 34**). The dialogue box will require you to enter the new user’s name, email address and the user’s role within the organisation (for more information on user roles see **Section 11.1.1.1**). Enter the required information and then click ‘**Save and Send Invite**’. Hazman will then send the new user an email invite which has to be accepted by the new user before they become ‘active’ users.

The screenshot shows a web-based 'Add User' form. The title bar says 'Add User'. There are three input fields: 'Name' (empty), 'Email Address' (empty), and 'Role' (set to 'Admin'). Below the form are two buttons: a blue 'Save and Send Invite' button and a grey 'Cancel' button.

Figure 34: The Add User interface.

11.1.1.1 User Roles

There are three possible levels of user in Hazman:

- Administrator;
- Manager; and
- Standard User.

An administrator has full access to all registers and users within their organisation. The status allows administrators to edit, delete and add registers and edit the risk criteria within these registers. Administrators can manage users and are able to add, edit and delete other users. It is recommended to allocate administrative user roles carefully.

A manager is able to manage users but can have their access to other risk registers limited by an administrator.

A standard user's rights, in contrast, are granted by an administrator/manager and can be customised extensively. A user's access can be modified to be able to have:

- Full access - Fully access a risk register, including the ability to edit the risk criteria;
- Standard access - View and edit hazards, but unable to change the risk criteria;
- Read only access – A user can only view the hazard list; and
- No access – a user is unable to view or edit a risk register.

To set up a standard user's permissions see **Section 11.1.2**.

11.1.2 Editing and Deleting Users

To edit or delete a user, navigate to the organisation's homepage, select the 'Users' tab, and click on the user account that you wish to modify or remove. Hazman will bring up a dialogue box (**Figure 35**) in which you are able to edit the user or delete them. After you have finished editing the user, click the '**Save**' button and the dialogue box will close and save the changes. To remove a user from the organisation, click on the '**Delete**' icon at the bottom right of the dialogue box.

Edit User

Name
Mr Smith

Email Address
mrsmith@email.co.uk

Role
Admin

Save or Cancel **Delete**



Figure 35: Edit User interface.

11.2 SETTINGS (ADMINISTRATORS ONLY)

The settings tab is where you are able to change the settings of your organisation. Under this tab, you are able to change the organisation's name and the logo which appears in the top left corner of the screen. Here you are also able to select which modules are visible under the 'Modules' tab (Figure 36).

MARICO MARINE Marico Marine UK Hazman Administration Marico Marine UK ▾ Send Feedback Logout

Modules Settings Users

Settings **Save**

Organisation Name
Marico Marine UK

Logo
 Browse...

Preview:


Register Options

Show Navigation Registers
 Show Health and Safety Registers
 Show Corporate Registers
 Show Incident Module (requires at least one Register Type)
 Show AIS Module

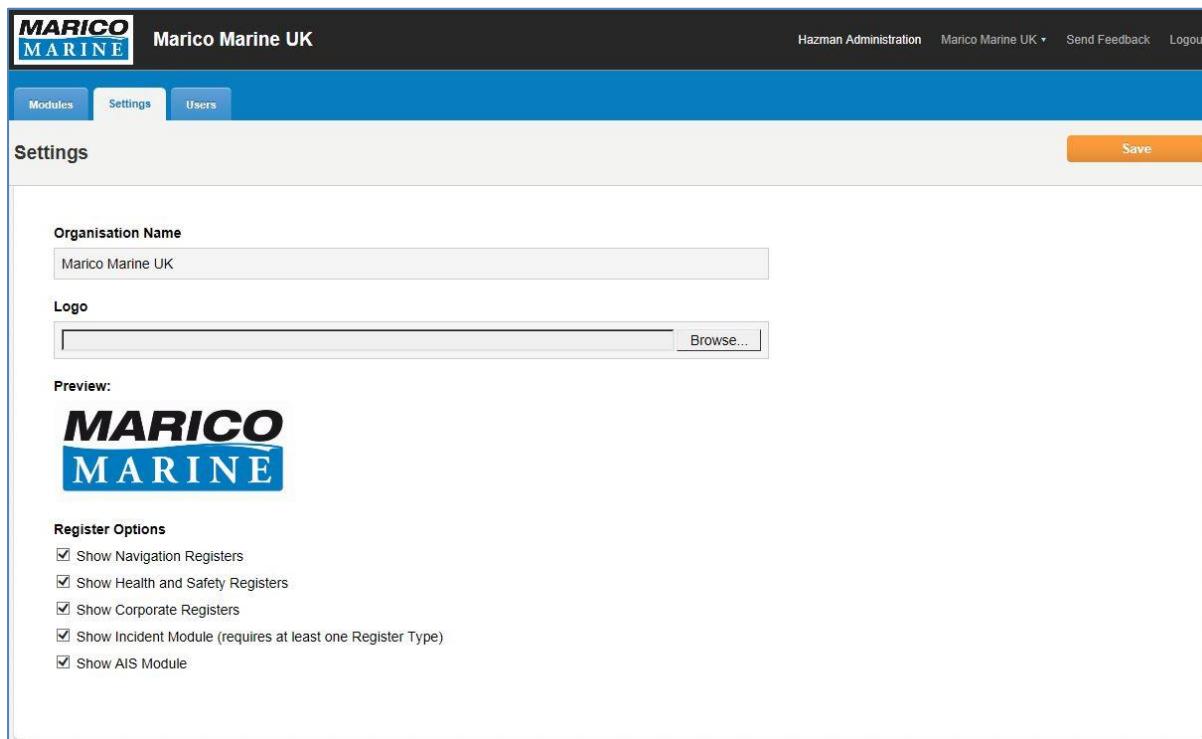


Figure 36: Settings.

11.3 REGISTERS

Risk registers contain entire hazard databases for the organisation. To upload a new database, a new register must be created.

11.3.1 Adding a Register

To add a new register, click the ‘New Register’ icon under the ‘Modules’ tab. Hazman will then bring up an ‘Add Register’ dialogue window (the add navigation register is shown in **Figure 37**). This window gives you the following four options: to create an empty register, to copy an existing register, to create a register imported from Hazman v1 (for which you will need the Hazman.mdb and the sysman.mdb Hazman v1 files), and to create a register imported from an Excel file.

The Add Register wizard also allows either direct copies of other risk registers or just the Risk Criteria settings to be used as the basis for the new register.



Add Navigation Register

- This is an empty register
- This is a copy of another register
- This is a register imported from Hazman v1
- This is a register imported from Excel

Name

Template

or Cancel

Figure 37: Add Register.

11.3.2 Importing from Excel

Selecting Import from Excel allows the user to download an excel template and enter hazards in a spreadsheet format and upload the end result straight into Hazman.

Important: .xls is the only Excel file that can be uploaded into Hazman.

Figure 38 shows an example of data entry into this excel template. Note that the overall risk score has been left blank and Hazman will automatically calculate the final score.

Important: Excel upload does not support rich text such as different colours, bullet points, bold, italics etc. To ensure the upload completes successfully do not alter the excel template in any way.

Hazard ID	Area	Category	Hazard title	Hazard detail	Causes	Most Likely Outcome	Worst Credible Outcome	Most Likely Consequence			Worst Credible Consequence			Overall Risk	Remarks			
								People	Property	Environment	Stakeholders	Frequency	People	Property	Environment	Stakeholders	Frequency	
1	Harbour Entrance	Collision	Commercial Vessel Collides with Yacht	Commercial Vessel Collides with Yacht	Master Error; Poor Visibility; Mechanical Failure	Minor Damage; Minor Injuries	Major Damage; Single Fatality	1	3	2	1	3	2	4	3	2	2	Some Remarks

Figure 38: Example of Hazman Upload spreadsheet.

The raw entry scores scale from 1 (lowest) to the register matrix size as the highest. For example in a 5x5 matrix a score of 5 will be high likelihood or high consequence (**Table 1**), or 3 in a 3x3.

Table 1: Excel 5 by 5 score entry.

Frequency		Consequence	
Score	Excel Entry	Score	Excel Entry
1 in 10000	1	Very Low	1
1 in 1000	2	Low	2
1 in 100	3	Moderate	3
1 in 10	4	High	4
1 in 1	5	Highest	5

In **Figure 38** the most likely frequency is 3 which relates to 1 in 100 years (see **Table 1**). The worst credible is shown as 2 which relates to 1 in 1000 years.

11.3.3 Viewing a Register

Under the ‘Modules’ tab, the five most recently used registers are displayed. You are able to click on any of the registers visible to open them. Click ‘Show All’ to view all of the registers in the module. You can now move your cursor over the register you wish to open should it not have been within the

last five viewed. This will result in the desired item being highlighted in the list and a ‘view’ icon will appear to the right of the register’s name (see **Figure 39**). To select the register, click any area which is populated by the register. Provided an administrator has granted you permission to view the register, the requested register will load.

Navigation - Risk Module					Add Register
Register	Hazards	Controls	Last Updated	Access	
Test Navigation Register	0	0	22 Jul 2014 10:41 AM	Admin	
Test of corporate	0	0	25 Jul 2014 4:23 PM	Admin	
Test register (view)	0	0	22 Jul 2014 10:42 AM	Admin	(delete)

Figure 39: List of Risk Registers.

11.3.4 Changing a Register’s Name

To change the name of the risk register, you need to enter the risk register and navigate to the ‘Risk Criteria’ tab and enter ‘Register Settings’ (**Section 4.1**). In the ‘Register Settings’, there is a dialogue box headed ‘Register Name’ and it will contain the current name for the register; erase the current name, replace it with your desired title for the risk register and click ‘Save’.

11.3.5 Deleting a Register

If you are an administrator within your organisation you are able to delete registers. In order to do this you must first navigate to your organisation home page. Click ‘Show All’ to view a list of all the risk registers present in the organisation (or all risk registers you are permitted to view within the organisation). Once you are on this page, find the register you wish to delete in the register list, hover your cursor over the register, and click the ‘delete’ icon that will appear in the far right of the row of the selected register (see **Figure 39**).

12 DOCUMENT DATABASE

The ‘Document Database’ tab can be found in the navigation bar at the top of your screen and is where all of the documents uploaded to your register can be accessed.

12.1 VIEWING DOCUMENTS

To view a document from the document database, the item must be downloaded to your computer. To begin downloading a document, click on the item you wish to view and your browser will begin downloading. Once the document has been downloaded, open the file to begin viewing.

12.2 UPLOADING DOCUMENTS

To upload a new document to the document database click the ‘**Upload Document**’ icon in the top right of your screen. A pop-up window will load to assist you in uploading your new document. This new window will require that you provide a suitable name for the document (under ‘Title’) and specify where the document is on your local hard drive under ‘Upload File’. Once you have completed these steps, click the ‘**Save**’ icon and Hazman will begin uploading your new document. Once finished, the page will refresh and the document will appear in the list. You are also able to add a web address by inserting the address in the ‘Add file from URL’ box.

13 RISK DEVELOPER

The ‘Risk Developer’ tab allows you to import the settings from another risk register into the current risk register. After choosing a risk register in your organisation from the drop-down list, you have the option to import a hazard and all its controls or specific hazards or controls in isolation. The hazards and controls are grouped in their categories but the list can be expanded by clicking ‘show’.

To import a hazard and all its associated controls, select a register and then mark ‘Import all controls related to selected hazards’ and finally tick the hazard categories or click ‘show’ to select a specific hazard from within a category.

To import individual hazards or controls, select a register and then mark ‘Select which controls to import’ and tick each hazard or control.

Once you are happy with your selection, click ‘**Import**’ and the risk controls will be added to the ‘Hazards’ tab (**Section 6**) and/or ‘Risk Controls’ tab (**Section 7**).

14 ARCHIVE

Once hazards and risk controls have been deleted they can no longer be restored, however it is possible to archive hazards and risk controls. This means that they will no longer be in your register but stored under the ‘Archive’ tab enabling you to retrieve them at a later date should you wish to do so.

14.1 ARCHIVING A HAZARD

To send a hazard to your archive select the hazard and click ‘**Edit Hazard**’. You are then able to click the ‘**Archive Hazard**’ button. The hazard will now be removed from your register and made visible in your archive.

14.2 RESTORING A HAZARD

To restore a hazard, click on the hazard you wish to restore under the ‘Archive’ tab and click the ‘**Edit Hazard**’ icon. It is now possible to press ‘**Restore Hazard**’ and the hazard will be transferred to your register once more.

14.3 ARCHIVING A RISK CONTROL

To send a risk control to your archive select the risk control and click ‘**Edit Control**’. You are then able to click the ‘**Archive Control**’ button. The risk control will now be removed from your register and made visible in your archive.

14.4 RESTORING A RISK CONTROL

To restore a risk control, click on the control you wish to restore under the ‘Archive’ tab and click the ‘**Edit Control**’ icon. It is now possible to press ‘**Restore Control**’ and the risk control will be transferred to your register.

15 RISK REDUCTION

Active ‘Risk Reduction’ is a feature in Hazman II which enables users to assess the effectiveness of risk control measures. It is a relatively complex area of risk assessment which requires careful consideration. It should only be utilised for whole risk registers, as partial implementation into an individual risk register may void the risk ranking algorithm. Given its complexity it is explained in full in this section.

Important: Risk reduction is entirely optional and only affects a risk register and risk assessment if you choose to use it.

Risk controls aim to reduce the risk score of a hazard, and can affect the likelihood or consequence of that hazard (for example buoyage reduces the likelihood of grounding whereas life jackets reduce the consequences if a man falls overboard). If you can estimate how effective a risk control is at reducing the risk of a hazard occurring then you can calculate risk control effectiveness.

There are three assessments of risk required for risk reduction to be effective. These are;

- **Baseline Risk:** The calculated risk score at the time of your risk assessment. This includes all current risk controls;
- **Inherent Risk:** The baseline risk score without any risk controls applied. E.g. your risk assessment is typically undertaken with risk controls in place but inherent risk is the score if all risk controls were removed; and
- **Residual Risk:** The baseline risk score with additional mitigation measure in place that were not included when the risk assessment was undertaken.

15.1 UTILISING RISK REDUCTION

In the ‘Assessed Risk’ tab of the ‘Add Hazard’ wizard (**Section 6.3.3**) you score the frequency and consequence values for the ‘most likely’ and ‘worst credible’ occurrence of a hazard. The next step of the process is the risk controls tab where you can add which risk controls are associated with that hazard with the date applied (**Figure 40**). This score therefore produces a baseline assessment of risk.

On the Risk Controls tab two columns are then shown, entitled ‘Baseline Risk’ and ‘Residual Risk’ with percentage effectiveness for consequence and frequency values (Note these values can be defaulted for all hazards in the Risk Controls tab).

- The Baseline Risk Column is for risk controls included in your risk assessment. Changes made here will not alter your baseline risk score but will back calculate an inherent risk score; and
- The Residual Risk Column is for risk controls not included in your risk assessment. Changes made here will reduce your baseline risk score to a residual risk score.

In **Figure 40** two risk controls are shown that are included in the baseline risk assessment.

Controls				Risk Assessment Date: 8 July 2013
Control	Date Applied	Baseline Risk ●	Residual Risk ●	
Sample control	8 July 2013	Included in Baseline Risk Assessment (remove) Freq. Eff. 30 % Cons. Eff. 20 %	Risk Reduction unchanged (add) (delete)	
Sample Control 2	3 March 2013	Included in Baseline Risk Assessment (remove) Freq. Eff. 10 % Cons. Eff. 5 %	Risk Reduction unchanged (add) (delete)	
Next				

Figure 40: Risk Control effectiveness entry.

Having saved the hazard the risk reduction will take effect, the baseline risk score is 4.72, however an inherent risk score of 5.09 is also produced. At the bottom of the view hazard section is a graph depicting the hazard risk scores over time (**Figure 41**). The graph shows that the baseline risk score as calculated by the assessed risk remains level on 4.72 (indicated by a black line). However, two icons, A and B, show a step change in the residual risk score backwards in time up to the Inherent risk score. Therefore the graph moves back in time and removes the risk controls by date until no risk controls remain (NB the graph time frame is set in the risk criteria tab).

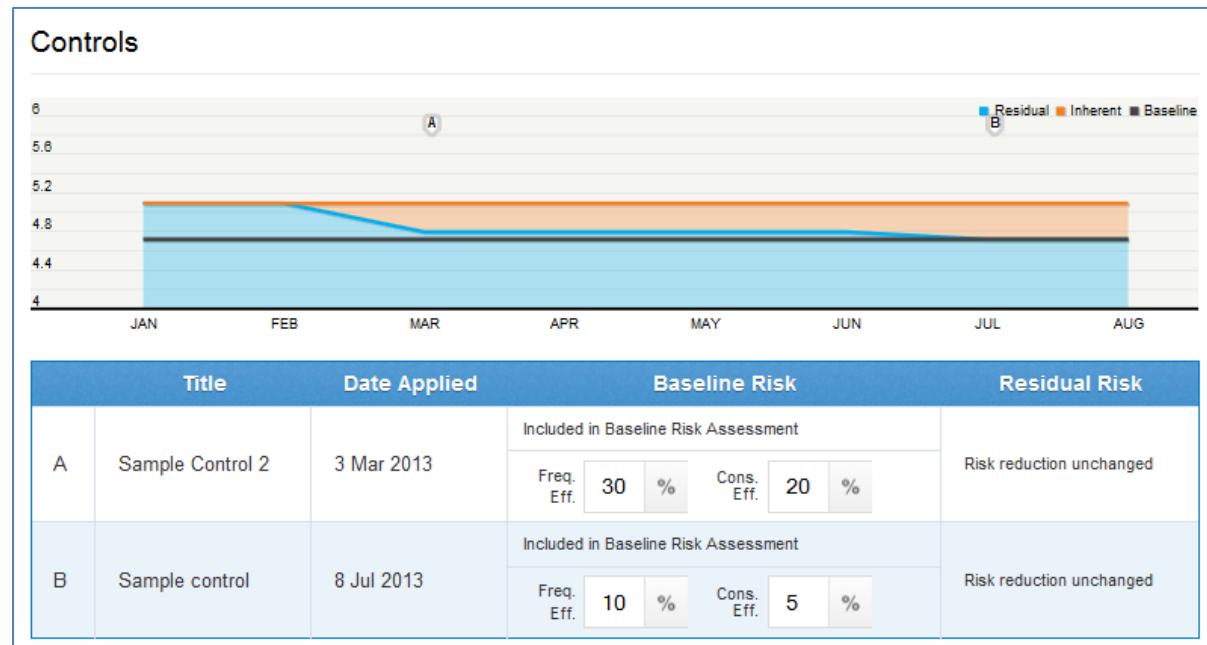


Figure 41: Impact of Risk Control Effectiveness (1).

Figure 42 reverses this so that both risk controls are now new and were not included in the risk assessment. The baseline risk score remains at 4.72 but the inherent risk score is now also 4.72 as no effectiveness is included. The blue inherent risk score now moves in the other direction, below the baseline risk score as it is reduced to 4.29.

Figure 43 combines both of these approaches to show two risk controls included and two risk controls not included. The baseline risk score is still 4.72 but the 5.09 inherent and 4.29 residual are above and below this line.

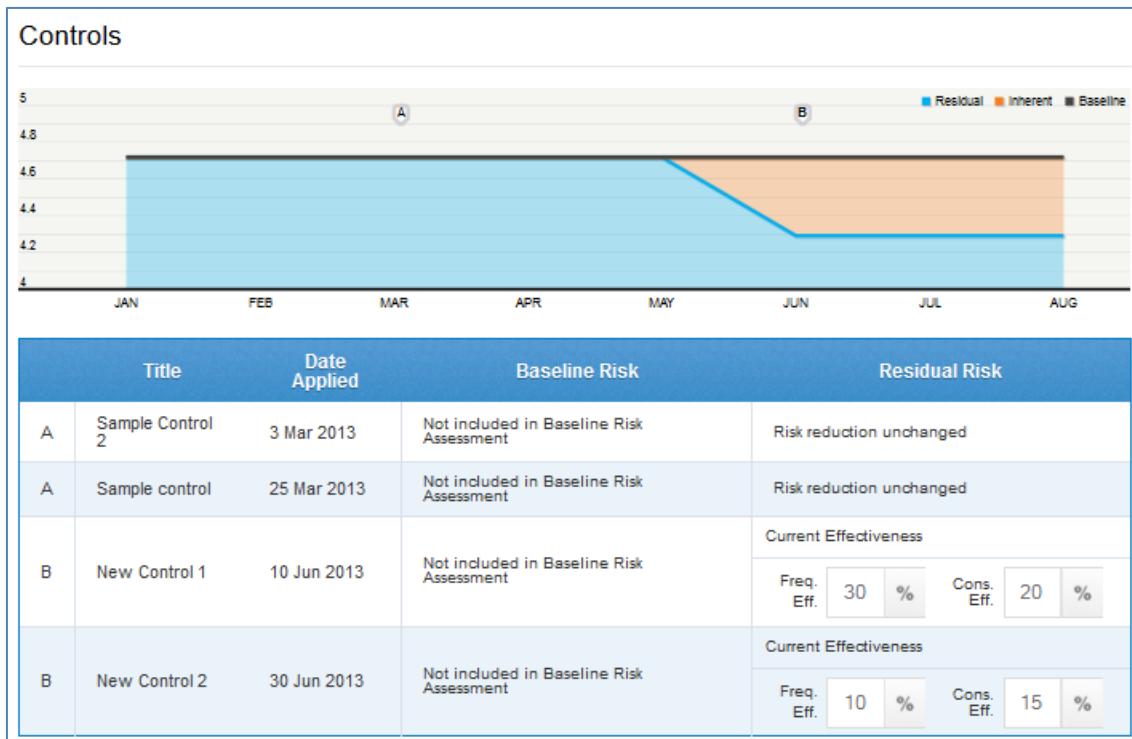


Figure 42: Impact of Risk Control Effectiveness (2).

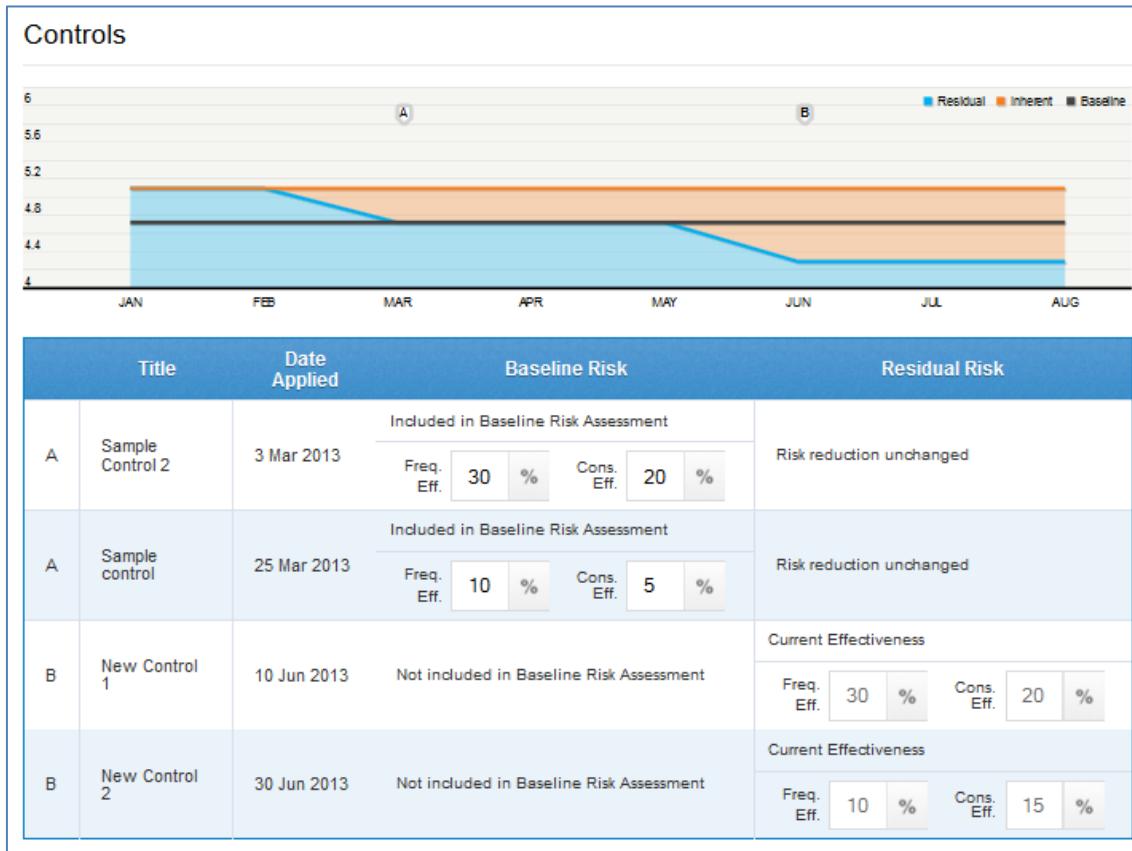


Figure 43: Impact of Risk Control Effectiveness (3).

Where risk reduction has taken place the movement of the risk plot is shown with a greyed outline representing the original (inherent) position of the hazard (**Figure 44**).

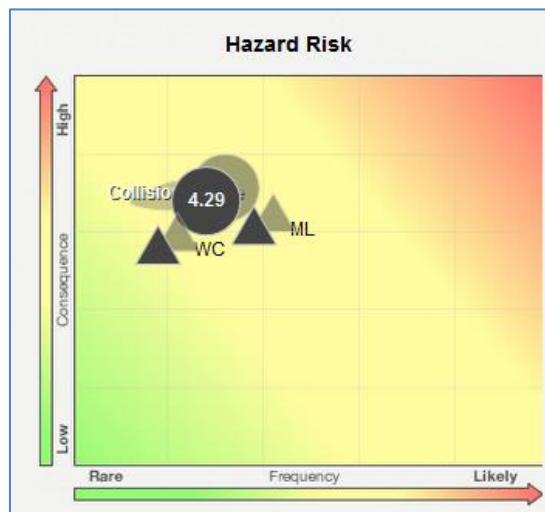


Figure 44: Movement of Risk Plot.

Table 2 shows the likelihood reduction by percentage.

Table 2: Likelihood Reduction by percentage.

% Reduction			RETURN PERIODS		
0	1	10	100	1000	10000
5	1.1	11	105	1053	10000
10	1.1	11	111	1111	10000
15	1.2	12	118	1176	10000
20	1.3	13	125	1250	10000
25	1.3	13	133	1333	10000
30	1.4	14	143	1429	10000
35	1.5	15	154	1538	10000
40	1.7	17	167	1667	10000
45	1.8	18	182	1818	10000
50	2.0	20	200	2000	10000
55	2.2	22	222	2222	10000
60	2.5	25	250	2500	10000
65	2.9	29	286	2857	10000
70	3.3	33	333	3333	10000
75	4.0	40	400	4000	10000

80	5.0	50	500	5000	10000
85	6.7	67	667	6667	10000
90	10.0	100	1000	10000	10000
95	20.0	200	2000	10000	10000
100	10000	10000	10000	10000	10000

Table 3 shows consequence reduction by percentage.

Table 3: Consequence Reduction by percentage.

% Reduction	CONSEQUENCE VALUES				
0	£10,000	£100,000	£1,000,000	£1,000,000	£1,000,000
5	£9,500	£95,000	£950,000	£950,000	£950,000
10	£9,000	£90,000	£900,000	£900,000	£900,000
15	£8,500	£85,000	£850,000	£850,000	£850,000
20	£8,000	£80,000	£800,000	£800,000	£800,000
25	£7,500	£75,000	£750,000	£750,000	£750,000
30	£7,000	£70,000	£700,000	£700,000	£700,000
35	£6,500	£65,000	£650,000	£650,000	£650,000
40	£6,000	£60,000	£600,000	£600,000	£600,000
45	£5,500	£55,000	£550,000	£550,000	£550,000
50	£5,000	£50,000	£500,000	£500,000	£500,000
55	£4,500	£45,000	£450,000	£450,000	£450,000
60	£4,000	£40,000	£400,000	£400,000	£400,000
65	£3,500	£35,000	£350,000	£350,000	£350,000
70	£3,000	£30,000	£300,000	£300,000	£300,000
75	£2,500	£25,000	£250,000	£250,000	£250,000
80	£2,000	£20,000	£200,000	£200,000	£200,000
85	£1,500	£15,000	£150,000	£150,000	£150,000
90	£1,000	£10,000	£100,000	£100,000	£100,000
95	£500	£5,000	£50,000	£50,000	£50,000
100	£0	£0	£0	£0	£0

16 THE HAZMAN APPROACH TO RISK

This technical section provides an outline of the theoretical basis for the Hazman algorithm. Hazman was developed following the recommendations of the Formal Safety Assessment and incorporates the approaches to risk taken by both the nuclear safety industry and NASA.

The process starts with the identification of all potential hazards. It then assesses the likelihood (frequency) of a hazard causing an incident and considers the possible consequences of that incident. It does so in respect of two scenarios, namely the ‘most likely’ and the ‘worst credible’. The quantified values of frequency and consequence are then combined to produce a Risk Score for each hazard. These are collated into a ‘Ranked Hazard List’ from which the need for possible additional mitigation may be reviewed (see **Figure 45**).

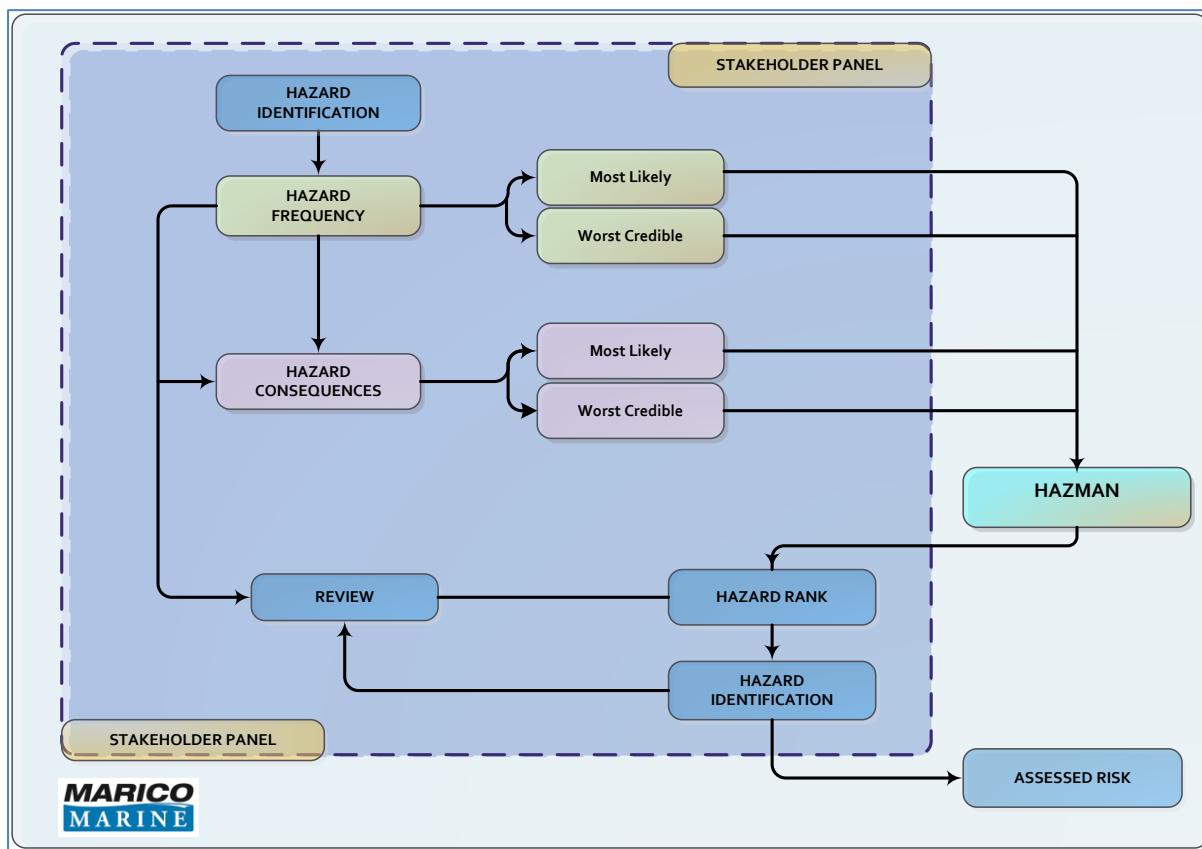


Figure 45: Marico Marine hazard identification process.

Risk is the product of a combination of consequence of an event and the frequency with which it might be expected to occur. International Maritime Organisation (IMO) Guidelines define a hazard as “*something with the potential to cause harm, loss or injury*”, the realisation of which results in an accident. The potential for a hazard to be realised can be combined with an estimated or known

consequence of outcome. This combination is termed ‘risk’. Risk is therefore a measure of the frequency and consequence of a particular hazard.

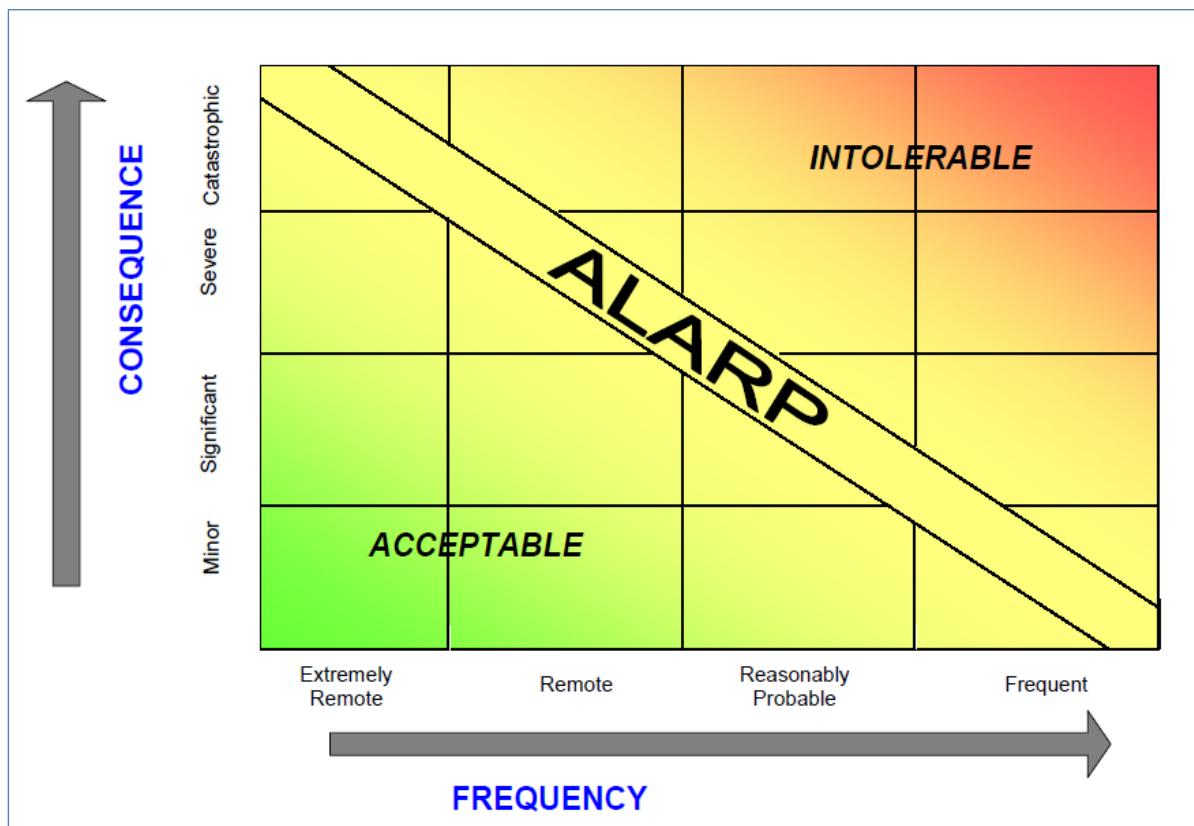


Figure 46: General risk matrix.

The combination of consequence and frequency of occurrence of a hazard is combined using a risk matrix (see **Figure 46**), which enables hazards to be ranked and a risk score assigned. The resulting scale can be divided into three general categories:

- Acceptable;
- As Low As Reasonably Practicable (ALARP); and
- Intolerable.

At the low end of the scale, frequency is extremely remote and consequence minor, and as such the risk can be said to be ‘acceptable’, whilst at the high end of the matrix, where hazards are defined as frequent and the consequence catastrophic, then risk is termed ‘intolerable’. Every effort should be made to mitigate all risks such that they lie in the ‘acceptable’ range. Where this is not possible, they should be reduced to the level where further reduction is not practicable. This region, at the centre of the matrix is described as the ALARP region. It is possible that some risks will lie in the ‘intolerable’ region, but can be mitigated by measures, which reduce their risk score and move them

into the ALARP region, where they can be tolerated, albeit efforts should continue to be made when opportunity presents itself to further reduce their risk score.

16.1.1 Hazard Identification

Hazard identification is the first and fundamental step in the risk assessment process. A hazard and its description need to be defined including:

- Hazard Title;
- Description;
- Areas Affected;
- Stakeholders Affected;
- Vessel Types Affected;
- Consequences; and
- Risk Controls.

16.1.2 Hazard Assessment

As indicated earlier, frequency of occurrence and likely consequence are both assessed for the ‘most likely’ and ‘worst credible’ scenario. Frequencies are assessed according to the levels set out in

Table 4.

Table 4: Frequency criteria.

Scale	Description	Definition	Operational Interpretation
F5	Frequent	An event occurring in the range once a week to once an operating year.	One or more times in 1 year
F4	Likely	An event occurring in the range once a year to once every 10 operating years.	One or more times in 10 years 1 - 9 years
F3	Possible	An event occurring in the range once every 10 operating years to once in 100 operating years.	One or more times in 100 years 10 – 99 years
F2	Unlikely	An event occurring in the range less than once in 100 operating years.	One or more times in 1,000 years 100 – 999 years
F1	Remote	Considered to occur less than once in 1,000 operating years (e.g. it may have occurred at a similar site, elsewhere in the world).	Less than once in 1,000 years >1,000 years

Using the assessed notional frequency for the ‘most likely’ and ‘worst credible’ scenarios for each hazard, the probable consequences associated with each were assessed in terms of damage to:

- People - Personal injury, fatality etc.;
- Property – Wind farm site and third party;
- Environment - Oil pollution etc.; and
- Business - Reputation, financial loss, public relations etc.

The magnitude of each is then assessed using the consequence categories given in **Table 5**. These have been set such that the consequences in respect of property, environment and business have similar monetary equivalent outcomes.

Table 5: Consequence categories and criteria.

Cat.	People	Property	Environment	Business
C1	Negligible Possible very minor injury (e.g. bruising)	Negligible Costs <10k	Negligible No effect of note. Tier1 <u>may</u> be declared but criteria not necessarily met. Costs <10k	Negligible Costs <10k
C2	Minor (single minor injury)	Minor Minor damage Costs 10k – 100k	Minor Tier 1 – Tier 2 criteria reached. Small operational (oil) spill with little effect on environmental amenity Costs 10K–100k	Minor Bad local publicity and/or short-term loss of revenue Costs 10k – 100k
C3	Moderate Multiple minor or single major injury	Moderate Moderate damage Costs 100k - 1M	Moderate Tier 2 spill criteria reached but capable of being limited to immediate area within site Costs 100k -1M	Moderate Bad widespread publicity Temporary suspension of operations or prolonged restrictions Costs 100k - 1M
C4	Major Multiple major injuries or single fatality	Major Major damage Costs 1M -10M	Major Tier 3 criteria reached with pollution requiring national support. Chemical spillage or small gas release Costs 1M - 10M	Major National publicity, Temporary closure Costs 1M -10M
C5	Catastrophic Multiple fatalities	Catastrophic Catastrophic damage Costs >10M	Catastrophic Tier 3 oil spill criteria reached. International support required. Widespread shoreline contamination. Serious chemical or gas release. Significant threat to environmental amenity. Costs >10M	Catastrophic International media publicity. Operations and revenue seriously disrupted for more than two days. Ensuing loss of revenue. Costs >10M

16.1.3 Hazman Risk Matrix

Frequency and consequence data are assessed for each hazard. Having decided in respect of each hazard which frequency and consequence criteria are appropriate for the consequence categories in both the ‘most likely’ and ‘worst credible’ scenarios, risk scores are obtained using the following matrix (see **Table 6**).

Table 6: Risk factor matrix used for hazard assessment.

Consequences	Cat 5	5.1	5.9	7.0	8.3	10.0
	Cat 4	4.1	4.9	5.9	7.4	9.4
	Cat 3	2.9	3.5	4.4	5.9	8.3
	Cat 2	1.5	1.8	2.4	3.5	5.9
	Cat 1	0	0	0	0	0
	Frequency	>1,000 years	100-1,000 years	10-100 years	1 to 10 years	Yearly

It should be noted that this risk matrix is not the product of a 5 by 5 multiplication. The frequency and consequence categories are logarithmic, increase in a tenfold step (e.g. 1, 10, 100, 1000). **Figure 47** shows how the consequence and frequency increases across the categories.

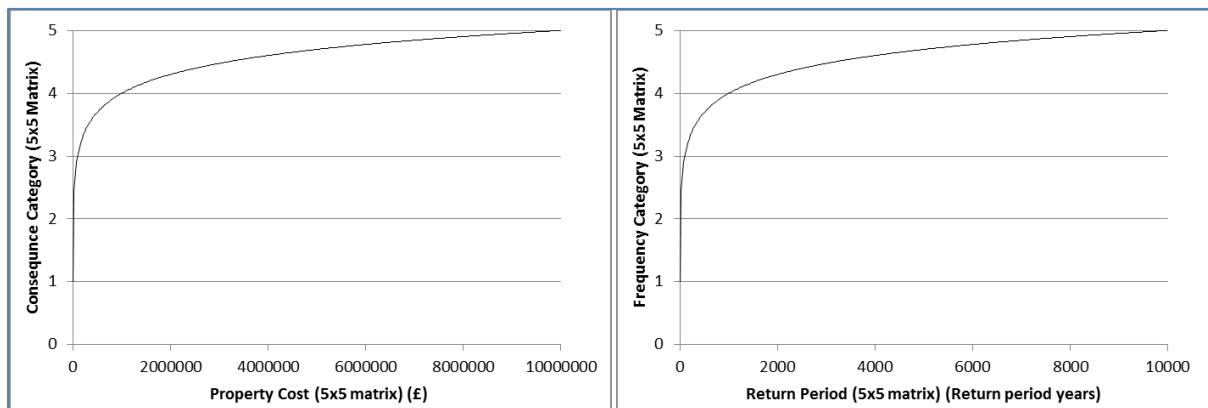


Figure 47: Left - Consequence category vs property cost plot. Right - Frequency category vs return period plot.

Therefore the actual risk matrix employed resembles a 3D shape, as represented in **Figure 48**.

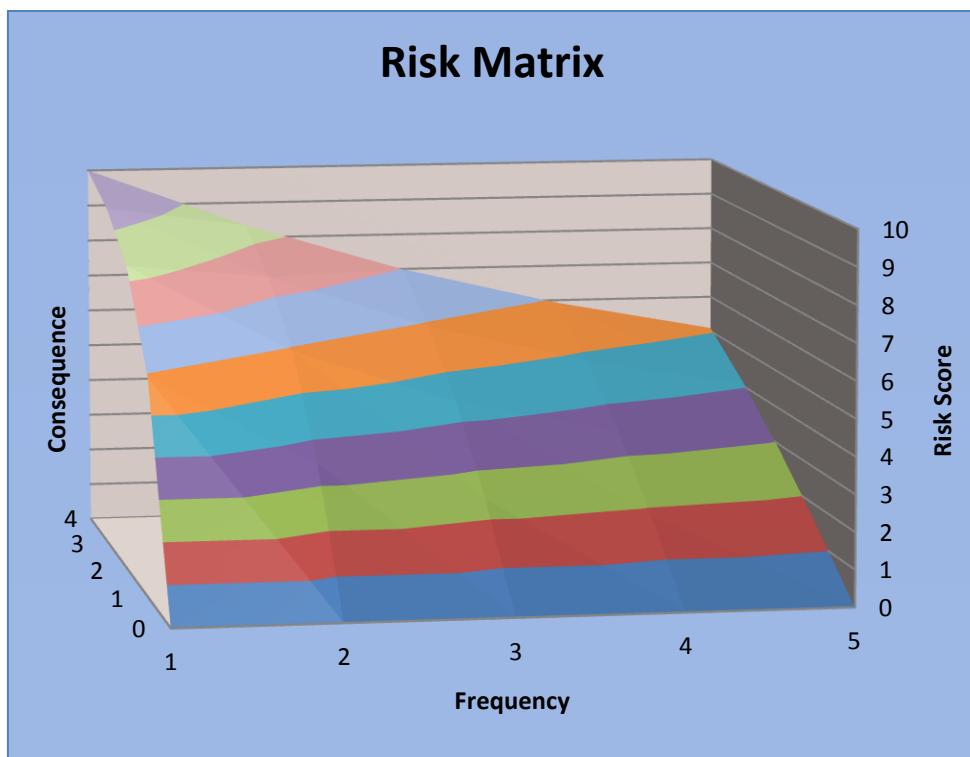


Figure 48: Hazman Risk Matrix.

16.1.4 Hazard Ranking

The risk scores obtained from the above process are then analysed further to obtain four indices for each hazard as follows:

- The average risk score of the categories in the 'most likely' set;
- The average risk score of the categories in the 'worst credible' set;
- The maximum risk score of the categories in the 'most likely' set; and
- The maximum risk score of the categories in the 'worst credible' set.

These scores were then combined to produce a single numeric value representing each of the four indices. The hazard list was then sorted in order of the aggregate of the four indices to produce a 'Ranked Hazard List' with the highest risk hazards prioritised at the top.

17 INCIDENT DATABASE

There are three incident databases that your organisation may subscribe to which are: Navigation, Health & Safety and Corporate databases. The incident database home screen is shown in **Figure 49**.

On the left is the filter and information toolbar (see **Section 19**). The map illustrates the location of incidents within the database, and a list of all incidents is displayed below the map.

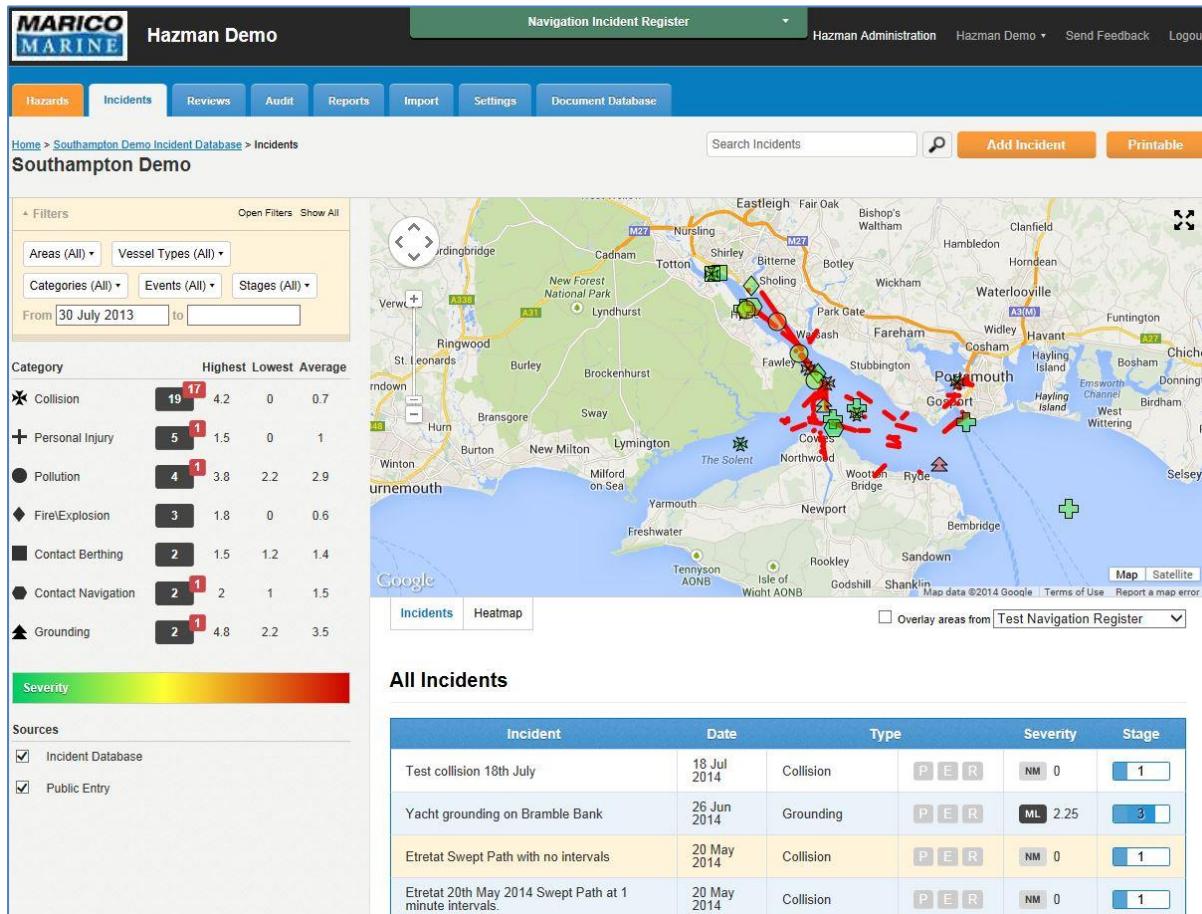
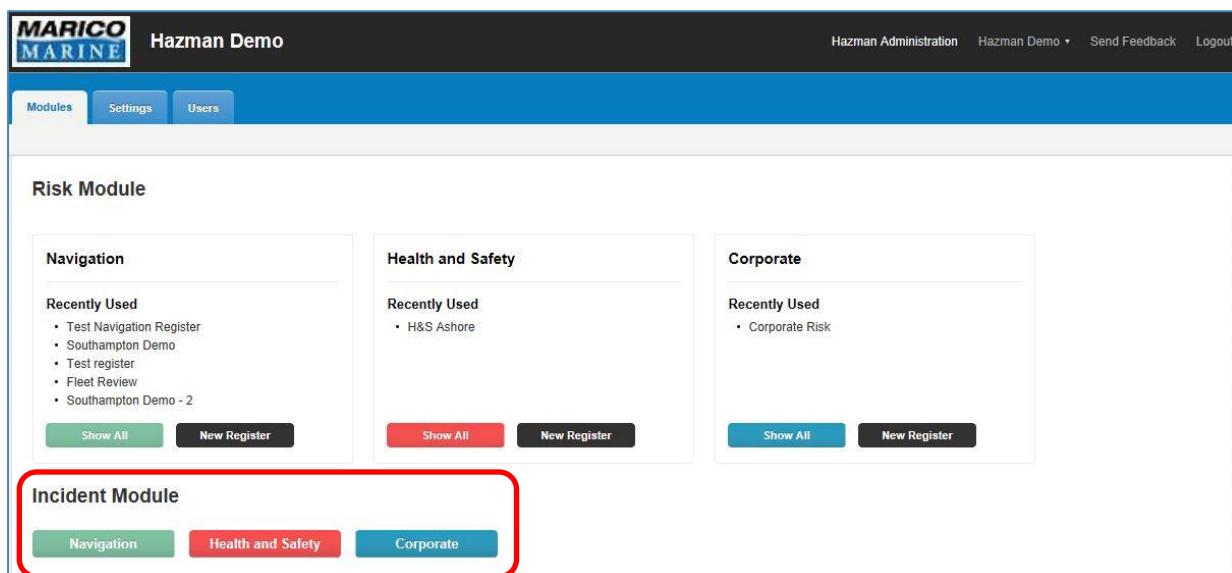


Figure 49: Incident database home screen.

18 ACCESSING YOUR INCIDENT DATABASES

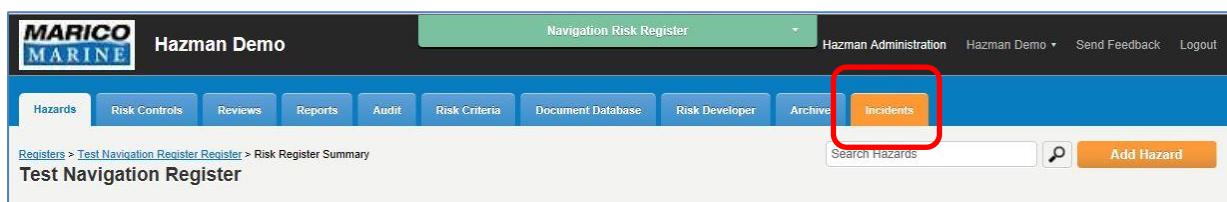
There are two ways to access incident databases: either through the ‘**Incidents**’ tab inside a risk register, or from your organisation’s homepage. If you intend to enter the incident database via the organisation’s homepage, the databases you are authorised to access can be seen below the risk registers (**Figure 50**). To enter an incident database simply click on the desired database from the organisation’s homepage.



The screenshot shows the MARICO MARINE Hazman Demo homepage. At the top, there is a navigation bar with links for 'Hazman Administration', 'Hazman Demo', 'Send Feedback', and 'Logout'. Below the navigation bar, there are three main sections: 'Risk Module' (Navigation, Health and Safety, Corporate), 'Incident Module' (Navigation, Health and Safety, Corporate), and 'Registers' (Hazards, Risk Controls, Reviews, Reports, Audit, Risk Criteria, Document Database, Risk Developer, Archive, Incidents). A red box highlights the 'Incident Module' section, which contains three tabs: Navigation (selected), Health and Safety, and Corporate. Each tab has 'Show All' and 'New Register' buttons.

Figure 50: Accessing Incident Databases.

Entering the incident database directly from a risk register can be done by clicking on the ‘**Incidents**’ tab (**Figure 51**).



The screenshot shows the MARICO MARINE Hazman Demo Risk Register page. At the top, there is a navigation bar with links for 'Hazman Administration', 'Hazman Demo', 'Send Feedback', and 'Logout'. Below the navigation bar, there is a breadcrumb trail: 'Registers > Test Navigation Register Register > Risk Register Summary'. The main content area shows a table for 'Test Navigation Register'. At the bottom of the page, there is a footer with links for 'Hazards', 'Risk Controls', 'Reviews', 'Reports', 'Audit', 'Risk Criteria', 'Document Database', 'Risk Developer', 'Archive', and 'Incidents'. An orange box highlights the 'Incidents' tab.

Figure 51: Incident database access from a risk register.

19 INCIDENT DATABASE FILTER AND INFORMATION TOOLBAR

The incident database filter (see **Figure 52**) allows you to filter incidents by:

- Area;
- Vessel type / Resource type;
- Incident category;
- Events;
- Review stage; or
- By date.



Figure 52: Incident database filter and information toolbar.

The incident information bar (**Figure 53**) shows the incident categories and their marker for the incident map. The incident count per category is displayed, and the small red box in the corner of the incident count box shows the number of incidents due for review. The highest, lowest and average scores are also displayed in this area.

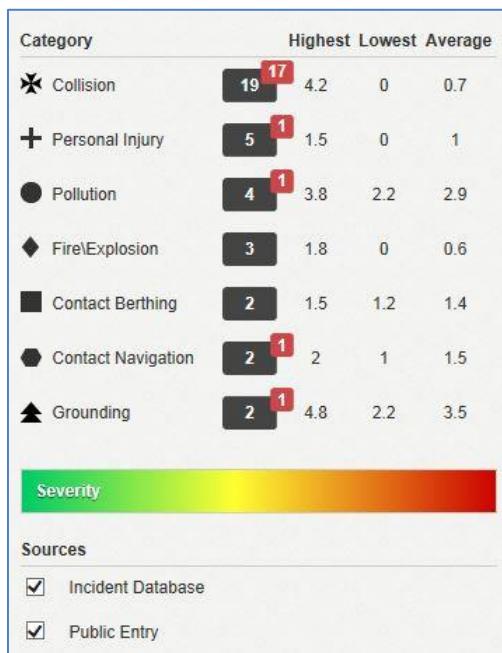


Figure 53: Incident information bar.

The map screen on the incident homepage can show the location of an incident as a pinpoint and it is also possible to display incidents as a heat map (**Figure 54**). The ‘severity’ on the information toolbar is a key to show the level of severity of the incident. The larger the red circle of the incident, the higher the score it was given, and therefore it has a higher severity. The heat map is a visual aid to identify the location of the severest incidents.

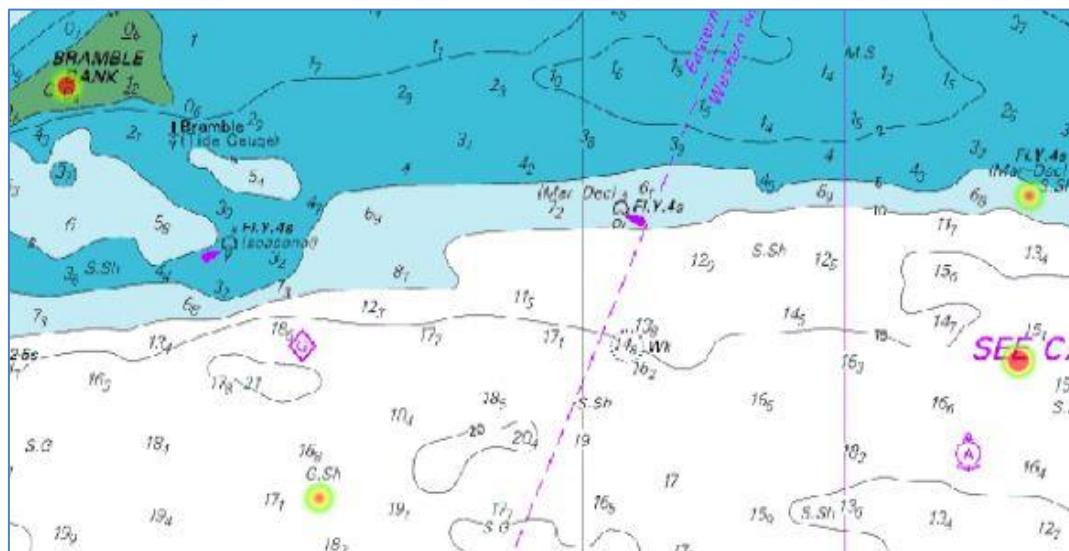


Figure 54: Incident heat map.

At the bottom of the information toolbar the ‘Sources’ of incidents can be found. In **Figure 53** the incidents come from the incident database and from public entry (public entries are explained in **Section 22**).

20 SETTINGS

The ‘Settings’ tab is where you set up the criteria for the incident database.

20.1 REGISTER SETTINGS

The ‘Register Settings’ tab allows you to give the incident register a name and a start date. There are options to:

- enable auditing;
- lock the risk criteria, the risk register, or neither;
- activate actions; and
- allow public incident entry.

The URL for the public incident page can be entered at the bottom of the page.

Once the incident register settings are set-up, click ‘Save’ (Figure 55).

Incident Register Settings

Register Name
Southampton Demo

Register Start Date
30 July 2014

Saving Edits Require Audit
Yes ▾

Lock Status
Unlocked ▾

Actions
Active ▾

Allow Public Incident Entry
Yes ▾

Public Incident URL
https://uk.hazman.org/incident/jkTNWvLG94WyVm5hK223TNFUvTPYku0YLoa8kNQ
View Public Incident Page

Save

Figure 55: Incident register settings.

20.2 INCIDENT CATEGORIES

Here you are able to add your incident categories by clicking '**Add Incident Category**'. You are able to give the incident category a name, abbreviation, a marker for the incident map, and define how many vessels / resources are involved (**Figure 56**). Click '**Save**' before moving on to the next tab.

The form is titled 'Add Incident Category'. It has four input fields: 'Name' (empty), 'Abbreviation' (empty), 'Marker' (set to 'Circle'), and 'Vessels Involved' (set to 'None'). At the bottom are two buttons: a blue 'Save' button and a grey 'Cancel' button.

Figure 56: Add incident category.

By clicking '**Copy Categories From**' under the 'Incident Categories' tab, incident categories can be copied from a risk register. This saves time and ensures the incident database incident categories match those in the risk criteria.

20.3 DICTIONARY

The dictionary enables you to alter the names of criteria within your incident database. In **Figure 57** 'Resource' has been renamed to 'Vessel', and 'Sub Resource' has been renamed to 'Sub Vessel' for the marine industry. Click '**Save**' once you have inputted your resources.

Term	Translation
Resource	Vessel
Sub Resource	Sub Vessel

Figure 57: Incident dictionary.

20.4 CHART

The Chart section displays a Google map from which you are able to find and save your location by pressing the ‘Save Location’ button (see **Figure 58**). You can copy the chart from a risk register by pressing ‘Copy Chart From’.

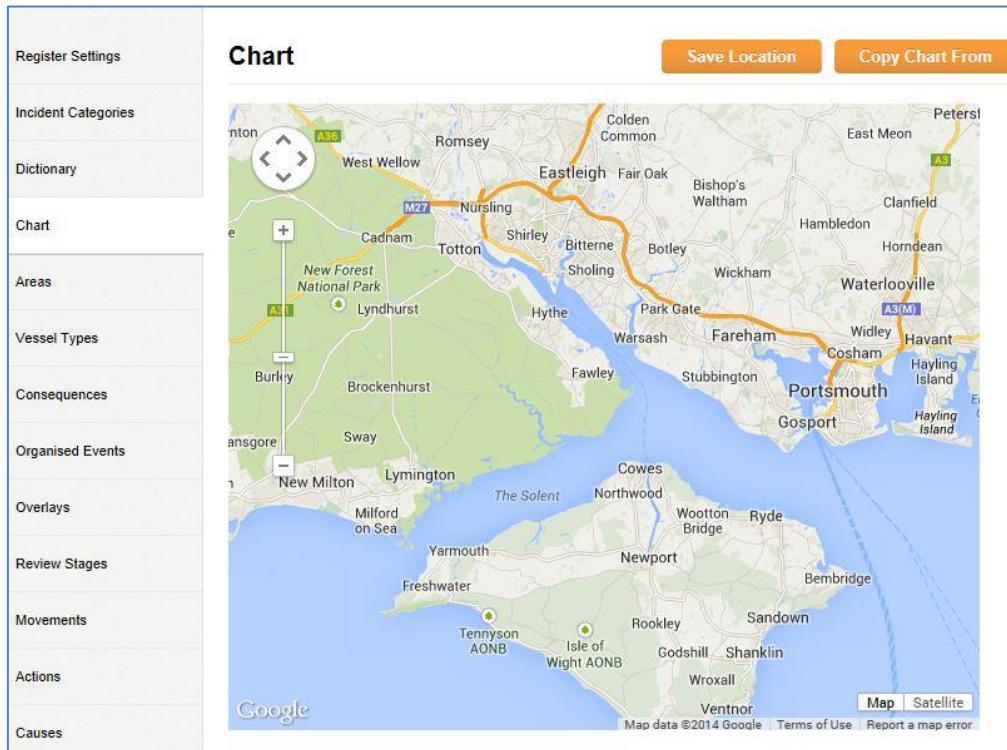


Figure 58: Incident chart.

20.5 AREAS

This tab allows you to add, edit and delete incident areas from the Settings. The process is the same as setting up the areas in a risk register (see **Section 4.5**). You can click the ‘Copy Areas From’ button to copy across areas from a risk register.

20.6 VESSEL TYPES (NAVIGATION INCIDENT DATABASE) / RESOURCE TYPES (HEALTH AND SAFETY AND CORPORATE INCIDENT DATABASES)

In this section you are able to add, change and delete existing resource types within the incident database (or vessel types in the navigation incident database). The process is the same as setting up the vessel types / resource types in a risk register (see **Section 4.10**). You can click the ‘Copy Vessel Types From’ or ‘Copy Resource Types From’ button to copy them across from a risk register.

20.7 CONSEQUENCES

From this area, you are able to add, edit and remove consequence classifications (see **Figure 59**).



Consequences

Add Consequence Classification

Consequence Classification

- Environment
- People
- Property
- Stakeholders

Number of Consequence Levels

5

Save

Figure 59: Incident consequences.

The drop down ‘Number of Consequence Levels’ allows you to choose the amount of consequence levels in that classification. This needs to be defined in the incident database settings whereas in the risk register the levels were defined by the risk matrix settings. To add a new consequence category, click the ‘**Add Consequence Classification**’ icon. A pop up window will appear (**Figure 60**) requiring you to provide a name for the new consequence, an abbreviation, and a suitable label for each consequence category (C1 being the lowest Consequence, through to C5 being the highest Consequence). Once you have finished this step, click the ‘**Save**’ icon at the bottom left of the window to create the new consequence classification.

Consequence

Name

Abbreviation

Consequence Descriptions

C1
More Detail
C2
More Detail
C3
More Detail
C4
More Detail
C5
More Detail

Save or Cancel

Figure 60: Add incident classification in incident settings.

To make changes to a consequence class, click on the item you wish to change and Hazman will load a pop-up window populated with the current information for the item. To change any aspect of the class, click your cursor into the text box containing the information that you wish to change, delete and overwrite it. After you have made the desired changes to your class, be sure to click the ‘Save’ icon in the bottom left of the window to confirm the changes. Deleting a class is done by clicking on the desired class and clicking on the ‘Delete’ icon in the bottom right of the window.

20.8 ORGANISED EVENTS

In this section you are able to create a list of events that incidents may be related to. Click on ‘**Add Event**’ to activate a pop-up where you type in the name of the event and click ‘**Save**’.

20.9 OVERLAYS

The ‘Overlays’ tab allows you to add, edit and delete overlays from the incident database settings. It is recommended that you contact a Marico Consultant if you wish to make any changes to your overlays. To add an overlay click on the ‘**Add Overlay**’ icon (**Figure 61**).

Overlays

Add Overlay

Overlay	Show
---------	------

Live Overlay URL

Save

Copy Overlays From

Figure 61: Add overlays.

Hazman will load a dialogue box asking for the overlay's name, the image file and its .tfwx file (**Figure 62**).

Add Overlay

Name

Upload Image

Upload .tfwx File



Save or Cancel

Figure 62: Add Overlay dialogue box.

Once these have been entered, click '**Save**'. Your new overlay will now appear in the list. To edit or delete an overlay, click on the entry that you wish to change and an 'Edit Overlay' dialogue box will open. To delete an overlay, click the '**Delete**' button in the bottom right corner of the dialogue box.

You are able to select which overlays are displayed by ticking the 'Show' box alongside the overlay's name (**Figure 63**).

Overlays		
Add Overlay		
Overlay	Show	
Overlay 1	<input checked="" type="checkbox"/>	
Chart 2	<input checked="" type="checkbox"/>	
Overlay 2	<input checked="" type="checkbox"/>	

Figure 63: Overlays tab.

The order of overlays can be changed by clicking the button with three horizontal lines:  and dragging the overlay to the desired position. You can click the '**Copy Overlays From**' button to copy an overlay across from a risk register. Be sure to click '**Save**' before moving on to the next tab.

20.10 REVIEW STAGES

You can give an incident a review stage when the incident is being created. There is also an opportunity to change the review stage when reviewing an incident. Under the 'Review Stages' tab you are able to define these stages (**Figure 64**). To add a review stage click 'Add Stage'. A pop-up box will allow you give the review stage a name and a code (which can be no more than two characters), once entered click '**Save**'. The default review stage can be set by ticking the 'Default' tick box of your chosen review stage. The review stages can be moved into a different order by

clicking the  button and dragging it up or down to the place of your choice.

Review Stages		
Add Stage		
Stage	Default	
AC - Awaiting categorisation	<input checked="" type="checkbox"/>	≡
II - Initial investigation ongoing	<input type="checkbox"/>	≡
DI - Detailed investigation ongoing	<input type="checkbox"/>	≡
IC - Investigation closed	<input type="checkbox"/>	≡

Figure 64: Incident review stages.

20.11 MOVEMENTS

In the navigation incident database the ‘Movements’ tab allows you to insert the amount of vessel movements per vessel type in your port per year. **Figure 65** demonstrates how an ‘Add movements’ pop-up box may look. The drop-down at the top lets you define the year of the vessel movements. The vessel types will be those that you entered in **Section 20.6** and you can enter the amount of movements in the ‘Movements’ box. Click ‘**Save**’ before moving on to the next tab.

Add Movements

Year
2013 ▾

Vessel Type	Movements
Leisure	0
Dry Cargo	0
Fishing Vessel	0
Passenger	0
RoRo	0
HSC	0
Tanker	0
All	0

Save or Cancel

Figure 65: Vessel movements.

20.12 ACTIONS

The Actions tab will only appear if you have chosen the Actions to be active under the Register Settings tab. You are able to add an Action by clicking the ‘Add Action’ icon (see **Figure 66**). Once you have filled in the fields click the ‘Save’.

Actions

Add Action Reset

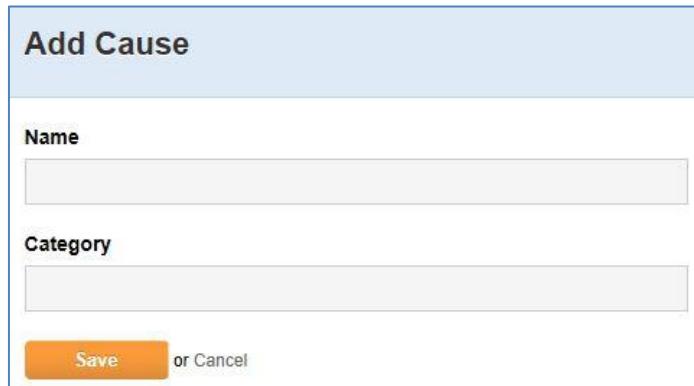
From Score	To Score	Category	Action
0	2	Negligible Risk	Periodic review.
2	4	Low Risk	Regular review.
4	6	ALARP	Review risk control options and monitor.
6	8	Significant Risk	Identify additional mitigation measures.
8	10	High Risk	Immediate mitigation required.

Figure 66: Actions tab under incident settings.

You are able to press the ‘Reset’ button to restore the values to those above in **Figure 66**.

20.13 CAUSES

The Causes tab allows the user to make a cause check list which can be selected from when attributing possible causes to incidents. Press the '**Add cause**' button and enter the cause's name and category before clicking the '**Save**' button (see **Figure 67**).



The form is titled 'Add Cause'. It contains two text input fields: 'Name' and 'Category', each with a corresponding empty text box below it. At the bottom, there is a horizontal button bar containing an orange 'Save' button and a 'Cancel' button.

Figure 67: Add cause.

21 ADDING A NEW INCIDENT

To add a new incident into the incident database click the '**Add Incident**' button in the top-right of the incident homepage (**Figure 68**).

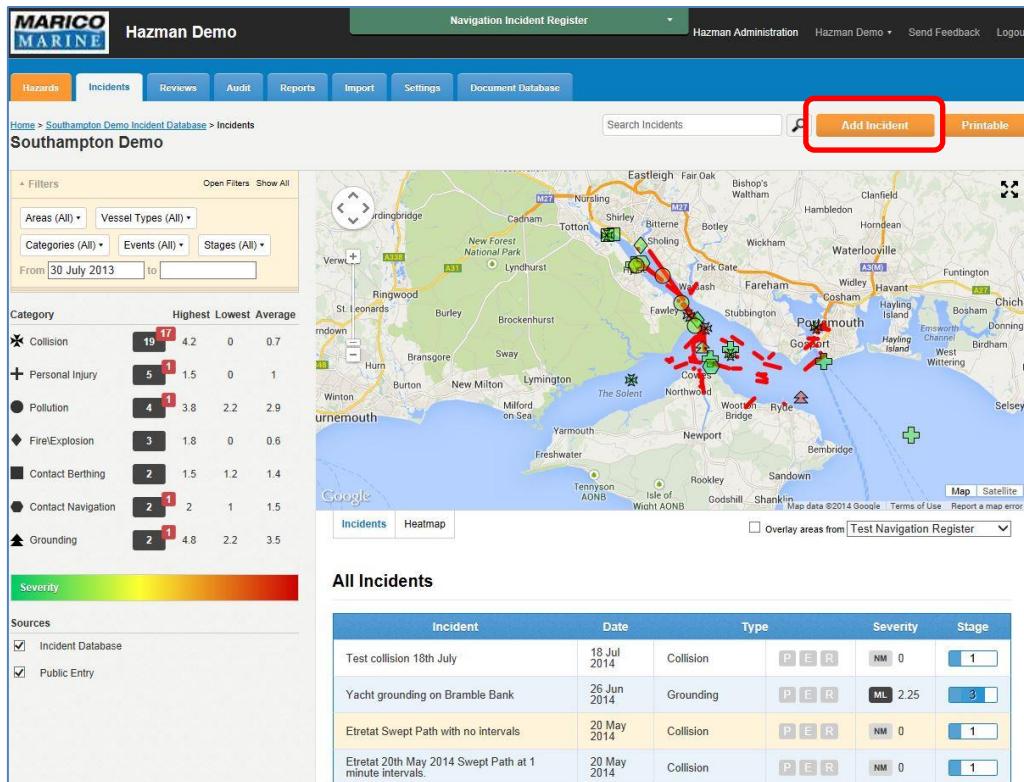


Figure 68: Incident homepage.

Creating new incidents follows a process outlined by the seven tabs down the left side of the screen (shown in **Figure 69**). Recommended practice is to work through each of the tabs top-to-bottom, entering all required information. You are able to save your progress at any time by clicking the '**Save Incident**' button; additional information may be entered at a later date. When you have finished, click '**Save Incident**' and it will be added to the database. Clicking '**Exit**' will cancel what you are doing and will not apply any changes you have made.

The screenshot shows the 'Add Incident' screen in the MARICO Hazman Demo software. The top navigation bar includes links for Hazman Demo, Navigation Incident Register, Hazman Administration, Hazman Demo, Send Feedback, and Logout. Below the navigation is a toolbar with buttons for Hazards, Incidents, Reviews, Audit, Reports, Import, Settings, and Document Database. The main area is titled 'Add Incident' and 'New Incident'. On the left, a sidebar lists tabs: Incident Summary (highlighted with a red box), Incident Location, Vessel Details, Causes, Consequences, Contact, and Documents. The 'Incident Information' section contains fields for Type of Accident (Collision), Date of Accident, Time of Accident, Organised Event (No Event selected), Is recreational? (checkbox), Title, and Description. A 'Review Stage' dropdown is set to 'Awaiting categorisation'. The 'Weather / Conditions' section includes a Natural light input field, Day/Night radio buttons (Day selected), and a Visibility (nautical miles) input field.

Figure 69: Add incident (navigation incident).

21.1 INCIDENT SUMMARY (NAVIGATION)

The information contained in this tab is intended to provide a brief summary of the incident. Here you will provide:

- a category the incident can be grouped into;
- the date and time of the incident;
- the organised event the incident was related to (if any);
- a tick in a check box to identify if the incident was recreational;
- a unique title that allows other users to identify the incident;
- a description of what happened;
- the review stage of the incident; and
- the weather / conditions of the incident.

21.2 INCIDENT LOCATION

The ‘Incident Location’ tab is where you are able to identify exactly where an incident has taken place. Location entry can be done either by entering the latitude and longitude in the area identified in **Figure 70**, or by clicking on any point on the map overlay. You are able to select one of your areas from the drop-down list to jump to that area, and you can insert a description of the location in the ‘Description’ box.

The screenshot shows the 'Add Incident' page with the 'Incident Location' tab selected. On the left, there's a sidebar with tabs for Hazards, Incidents, Reviews, Audit, Reports, Import, Settings, and Document Database. At the top right are 'Exit' and 'Save Incident' buttons. The main area has a title 'Incident Location' and a map of the southwest coast of England and northwest Wales. A red box highlights the latitude and longitude input fields (' ° ' N ° ' E'). To the left of the map is a sidebar with tabs for Incident Summary, Incident Location (selected), Vessel Details, Causes, Consequences, Contact, and Documents. Below the map are two questions: 'Did the incident occur in a Traffic Separation Scheme?' with 'Yes' and 'No' radio buttons, and 'Did the accident occur within the operational limits of a port?' with 'Yes' and 'No' radio buttons. At the bottom right of the map are links for 'Map', 'Satellite', 'Map data ©2014 Google', 'Terms of Use', and 'Report a map error'.

Figure 70: Incident location.

At the bottom of the page there is the opportunity to indicate if the incident occurred in a traffic separation scheme and whether or not it occurred within the operational limits of the port.

21.3 VESSEL DETAILS / RESOURCE DETAILS

This section enables you to input details on the vessel(s) / resource(s) that were involved in the incident.

21.3.1 Primary Vessel

To add details of the craft primarily involved in the incident, click the ‘Add Primary Vessel’ icon and the ‘Primary Vessel’ window will appear (**Figure 71**). Move through the tabs in the top left of the screen, entering as many details as possible. The ‘Essential Details’ tab is where you can provide the vessel’s particulars, along with the owner’s details. Under the ‘Statistics’ tab all statistical information relating to the vessel can be entered. Data from the vessel’s voyage data recorder and other observations which relate to the vessel’s voyage can be stored under the ‘Voyage’ tab. There is also a provision for a full narrative of the incident under the ‘Narration’ tab.

The screenshot shows the 'Primary Vessel' data entry interface. At the top, there are four tabs: 'Essential Details' (selected), 'Statistics', 'Voyage', and 'Narration'. The 'Essential Details' tab contains the following fields:

- Vessel Type: Dry Cargo
- Sub Vessel Type: All
- Vessel List: Select Saved Vessel
- Vessel Name: (empty input field)
- Port Of Registry: (empty input field)
- Flag of Vessel: (empty input field)
- Name of owner/manager: (empty input field)
- Address of owner/manager: (empty input field)
- Phone of owner/manager: (empty input field)
- Email of owner/manager: (empty input field)
- Vessel Identification (optional):
 - MMSI: (empty input field)
 - Call Sign: (empty input field)
 - IMO Number: (empty input field)
 - Registration: (empty input field)
 - Fishing Vessel Port Letters and Numbers: (empty input field)
 - RSS/SSR Number: (empty input field)
- Number of Crew Onboard: (empty input field)
- Number of Passengers Onboard (if applicable): (empty input field)

At the bottom left are 'Save' and 'Cancel' buttons. At the bottom right is a 'Save to Vessel List' button.

Figure 71: Add primary vessel details.

In the bottom right of the screen there is a ‘Save to Vessel List’ button. By pressing this button all of the vessel’s details are saved, therefore when you come to this tab in the future you can select the vessel from the ‘Vessel List’ which saves you from inputting the entire vessel details once more.

21.3.2 Secondary Vessel

If more than one vessel was involved in the incident, you are able to add a secondary vessel by clicking the ‘Add Secondary Vessel’ button. This will bring up a new window similar to the one

shown in **Figure 71**. Data entry is done in the same way as adding a primary vessel (see **Section 21.3.1**).

21.4 CAUSES

The ‘Causes’ section provides an area where all factors that may have contributed to the incident can be collated.

21.4.1 Possible Causes

The ‘Possible Causes’ section allows for all potential factors contributing to the incident to be identified and presented in a simple manner (see **Figure 72**). You can use the checklists which have previously been defined under the causes section of the incident settings tab (**Section 20.13**). The textbox on the right of the checklists can be used for further elaboration if required.

The screenshot shows a software interface for 'Add Incident'. At the top, there's a navigation bar with tabs: 'Records' (highlighted in orange), 'Incidents', 'Reviews', 'Audit', 'Reports', 'Import', 'Settings', and 'Document Database'. Below the navigation bar, the main area has a title 'Add Incident' and a sub-section 'New Incident'. On the left, there's a vertical sidebar with tabs: 'Incident Summary', 'Incident Location', 'Vessel Details', 'Causes' (highlighted in blue), 'Consequences', 'Contact', and 'Documents'. The 'Causes' tab is active, displaying a section titled 'Possible Causes' with four checkboxes: 'Environmental', 'Equipment', 'Human Error', and 'Operational'. To the right of this section is a large, empty text area with a toolbar at the bottom containing icons for bold, italic, underline, etc. Below the 'Causes' section are three text input fields labeled 'E.1. Please state why you think the accident happened:', 'E.2. Has any action been recommended by you or anyone else as a result of this accident and if so, what and by whom?', and 'E.3. Has any action been taken and if so what, by whom and when?'. Each of these text fields has a toolbar at the bottom with standard text editing icons.

Figure 72: Incident causes.

There are three other text boxes which may be filled out describing why you think the incident happened, if any action has been recommended to you as a result of the incident, or if any action has been taken.

21.5 CONSEQUENCES (NAVIGATION INCIDENT DATABASE)

The consequences tab (**Figure 73**) is where you can enter the consequence details of the incident. Here you may also log the consequences to people and the environment.

Consequences

Consequence Details People Environment

Consequences of accident (check as many boxes as apply)

Fatal injury Vessel lost or abandoned
 Non-fatal injury No injury or damage
 Vessel damaged Pollution

Extent of damage to your vessel and estimated cost (including cargo)

Consequences

Snap Near Miss Most Likely Worst Credible

Figure 73: Add incident consequences tab.

21.5.1 Consequence details

Under the ‘Consequence Details’ tab, check boxes can be marked to give an overview of the consequences of the incident. The extent of damage and estimated cost can be inserted into the box below the check boxes. The level of the consequences can easily be inputted by moving the slide bars at the bottom of the page. Clicking ‘Near Miss’ will reveal the box in **Figure 74** below. With the ‘Snap’ checked the slider will jump in intervals; with the ‘Snap’ unchecked the slider can be placed wherever you wish on the bar.

Consequences

Snap Near Miss Most Likely Worst Credible

Potential

1

Figure 74: Consequences near miss slider.

Selecting ‘Most likely’ or ‘Worst Credible’ will reveal the slide bars displayed in **Figure 75**. You are able to score the consequences in relation to the environment, people, property and stakeholders in

this example. They will be whatever consequence classifications you have previously defined in the Incident Settings tab (**Section 20.7**).

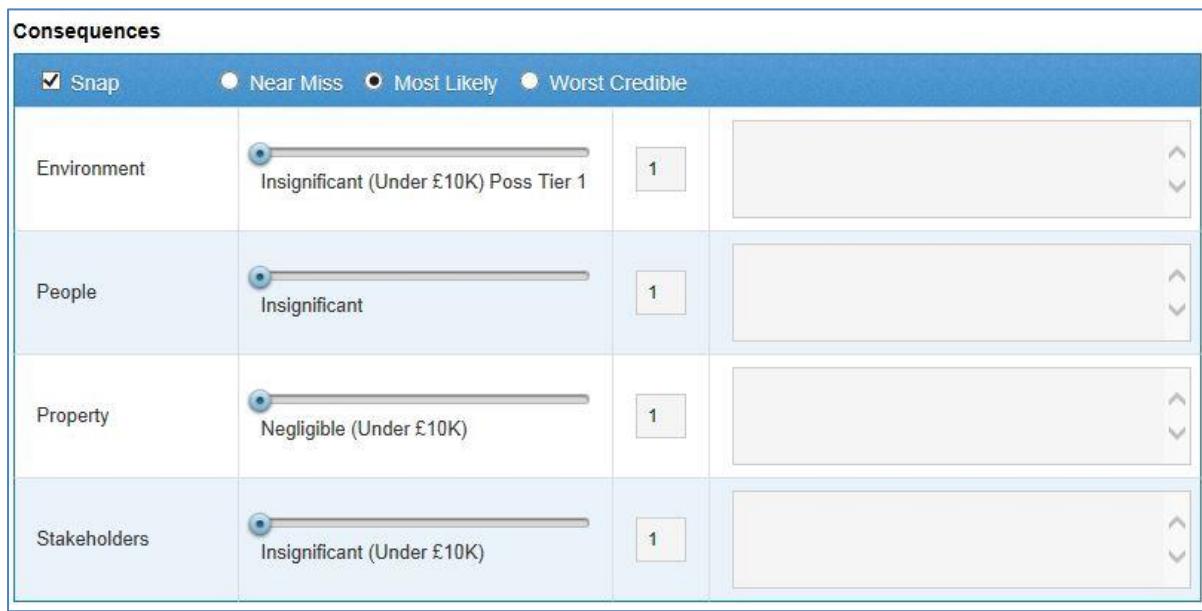


Figure 75: Most likely consequences slide bar.

21.5.2 People

Under the 'People' tab all of the details about those affected by the incident may be inserted. **Figure 76** shows the 'People' tab. A count of crew and passenger fatalities, those with serious injuries and those missing may be typed in the relevant boxes.

Consequences

Consequence Details People Environment

Position	Injury Location	Nature of Injury
There are no injured people created in the incident		

Add Person

	Fatal	Serious	Missing
Crew	<input type="text"/>	<input type="text"/>	<input type="text"/>
Passengers	<input type="text"/>	<input type="text"/>	<input type="text"/>

How many person(s) suffered injuries preventing performance of normal range of duties for more than 3 days after the day of the accident?

If more than 2 persons suffered reportable injuries please continue in the free text area:

How many person(s) killed or missing?

Figure 76: Consequences - people tab.

Click on '**Add Person**' to bring up a box (**Figure 77**) which will let you give details about one specific person involved in the incident.

Click on '**Save**' to keep the details inserted.

Edit Person

Position (e.g. rank, rating, passenger, shore worker, contractor)

Gender
 Male

Age

Nationality

What Was Injured? (e.g. left leg, finger)

Kind of Injury? (or enter fatal or missing if appropriate)

Place on vessel where injury sustained?

Did the injury mean more than 72 hours off work or greater than 24 hours in hospital?
 No

On Duty Off Duty

Save or Cancel

Figure 77: Add / edit person.

21.5.3 Environment

The ‘Environment’ tab enables you to specify the type and quantity of pollution created as a result of the incident.

21.6 CONTACT

The ‘Contact’ tab enables the contact details to be added of:

- The person completing the form;
- The ship’s safety officer; and
- The person representing the injured party.

21.7 DOCUMENTS

The documents tab allows you to upload documents to the incident. Click ‘Upload document’ and a pop-up dialogue box will appear (**Figure 78**).

The form is titled 'Upload Document'. It has three main input fields: 'Title' (empty), 'Upload File' (with a 'Browse...' button), and 'Add File From URL' (empty). At the bottom, there is an orange 'Save' button and a 'Cancel' button.

Figure 78: Upload document dialogue box.

Here you are able to type the title of the document and specify the file's location on your computer by pressing 'Browse'. You can add a web link by inserting a URL into the 'Add File from URL' box. Once you have provided the required details, click '**Save**' and Hazman will begin uploading the document from your computer.

If the document you wish to attach to the control has already been uploaded to Hazman, click '**Attach Existing Document**'. A dialogue box will then request you to specify which file you wish to attach; select the desired document and click the '**Save**' icon at the bottom of the box.

21.8 REQUESTING A SWEPT PATH (NAVIGATION INCIDENT DATABASE)

Once you have created your incident you are able to attach a swept path to the incident. On your chosen incident's overview page, click '**Request Swept Path**' button beneath the incident location map. The 'Request Swept Path' box (see **Figure 79**) will appear.

Request Swept Path

Date
26 June 2014

Interval
1 Minute ▾

MMSI Numbers

Required	Additional MMSI
Additional MMSI	Additional MMSI

Send Request or Cancel

Figure 79: Request a swept path.

Click on the ‘Date’ box to trigger a calendar to appear from which you can select the date for your swept path. The ‘Interval’ drop down allows you to pick one minute or none. If one minute is selected Hazman will only extract one position per minute for the requested vessels, which is useful for quick extracts. If no interval is selected then all available AIS transmissions will be extracted. The MMSI numbers of your vessel(s) need to be inserted. Be careful to insert the number correctly without spaces before or after the number within the box. Press ‘**Send Request**’ to request your swept path.

Once your request has been processed, the map on your incident overview page will change to have three slide bars and a ‘**Remove Swept Path**’ button should you wish to delete the swept path (**Figure 80**).

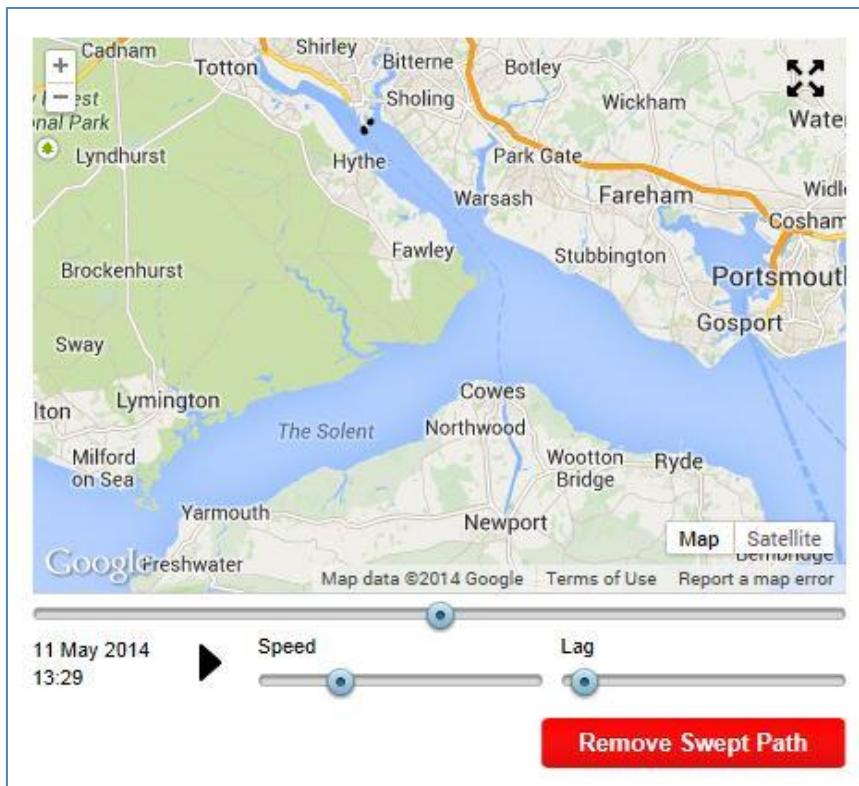


Figure 80: Incident swept path.

Your vessel(s) will then be displayed at a single point of time as a grey outline with a black border (when zoomed out this may appear as a black dot).

The three sliders and the play button in the bottom left of the screen are your playback controls:

- Pressing the play button will play the vessel track in fast time;
- The top slider will allow you to jump to certain time points by clicking on it. You can also drag the slider position by holding down left click on the slider point and moving it left and right;
- The ‘Speed’ slider controls the speed of playback. The slowest option (slider dragged to the left) is approximately one minute of data played in one second. The fastest option (slider dragged to the right) is approximately one hour of data in one second; and
- The ‘Lag’ slider controls whether the playback shows previous vessel positions, often referred to as the ‘Snail Trail’.

You can get more information about the vessel position by hovering your mouse over the vessel position. This will provide details about the vessel at each point in time including speed, course and heading.

22 ADDING A NEW INCIDENT - PUBLIC ENTRY

A webpage may be created to allow individuals to enter incidents to the incident database. The public incident URL is automatically generated in the incident ‘Register Settings’ tab (**Section 20.1**). On the ‘Register Settings’ tab you are also able to view the public incident page. You may wish this page to be available to members of the public, or perhaps only accessible to staff in order to record incidents internally (for example to record incidents in the Health and Safety incident database).

The ‘Public Incident Page’ is displayed in **Figure 81**.

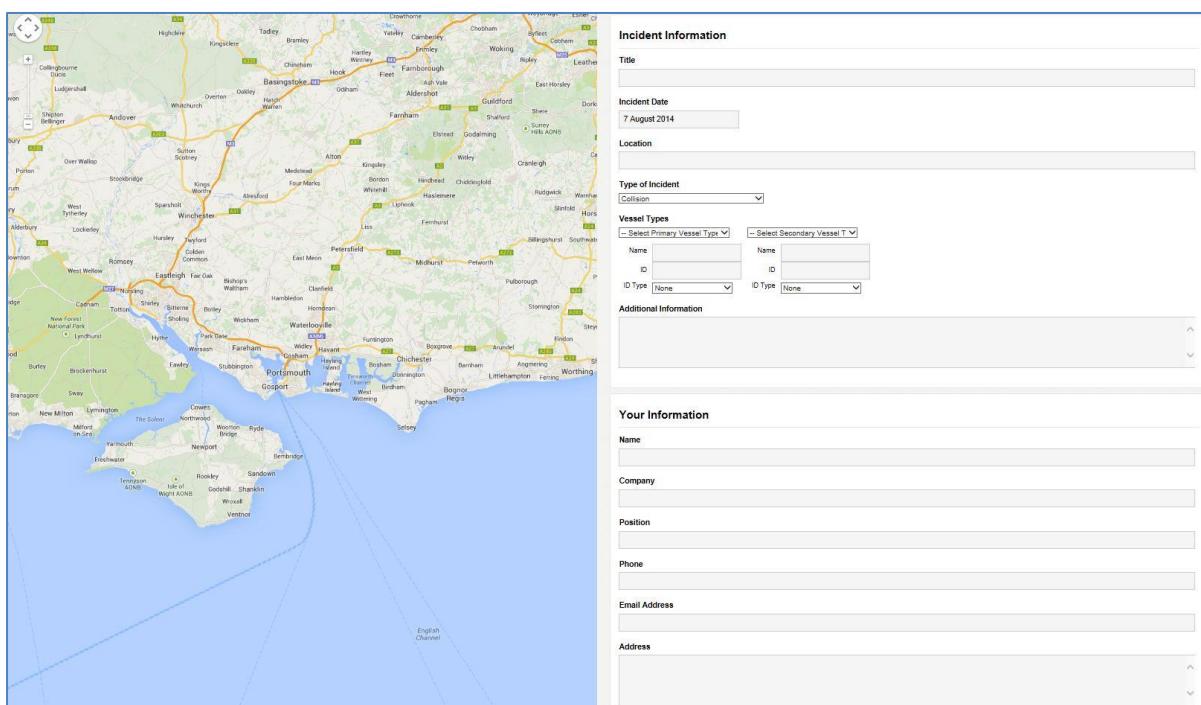


Figure 81: Public incident entry.

The map can be clicked on to show the location of the incident and the latitude and longitude of the pin point will be inserted in the top right of the incident information page. The following details can be put onto the page:

- Incident title;
- Incident date;
- Type of incident;
- Vessel / resource types;
- Additional information; and
- The contact details of the person filling out the form.

The save button needs to be pressed in order for the incident to appear in the incident database.

23 MODIFYING AN INCIDENT

In order to make changes to an incident, navigate to the ‘Incidents’ page and select the incident you wish to modify. Click on the ‘Edit’ icon which can be found in the top right corner of the screen. Hazman will take you to the ‘Edit Incident’ page which has the same layout as the ‘Add incident’ page (**Section 21**). Make your desired changes to the incident and press ‘Save Incident’.

24 REVIEWS

Incidents come up for review annually compared to hazards which can have their review date defined. The reviews tab (**Figure 82**) displays your incidents up for review and they are divided into two tabs: incidents and public incidents.

Incident	Date	Type	Severity
Loaded container lost overboard.	2 Mar 2014	P E R	ML 2.00
Collision between two sailing vessels.	12 Mar 2014	P E R	WC 3.25
Near miss	2 Apr 2014	P E R	NM 2.00

Figure 82: Incident reviews.

The incident reviews may also be accessed by clicking on the small red box in the corner of the incident count box found on the incident or hazard home page.

To review an incident click on the appropriate incident you wish to review to be taken to the incident overview page. At the top of the page there is a ‘Mark as Reviewed’ button highlighted in **Figure 83**.

The screenshot shows a software interface for managing incidents. At the top, there's a navigation bar with tabs: Hazards, Incidents, Reviews, Audit, Reports, Import, Settings, and Document Database. Below the navigation bar, the URL is shown as Registers > Southampton Demo Incident Database > Incidents > Incident. There are several buttons at the top right: Edit, Export MAIB Form, Print, Printable, and Exit. A search bar labeled 'Search Incidents' is also present.

The main area displays an incident record for a 'Yacht grounding on Bramble Bank'. The record includes the following details:

- INCIDENT DATE:** 26 Jun 2014
- INCIDENT TIME:** 09:00
- TYPE:** Most Likely
- CONSEQUENCE:** 2.25
- CATEGORY:** Grounding
- REVIEW STAGE:** Detailed investigation ongoing

A map of the Solent area is displayed, showing the location of Bramble Bank near Portsmouth. The map includes labels for various towns and landmarks like Totton, Sholing, Botley, Wickham, Fareham, Gosport, Ryde, and Yarmouth. A red marker indicates the exact location of the incident. At the bottom of the map, there are links for 'Map' and 'Satellite' view, along with copyright information: 'Map data ©2014 Google Terms of Use Report a map error'.

A prominent red box highlights a button labeled 'Mark as Reviewed' located above the incident details. Below the incident details, there's a link 'Request Swept Path'.

Figure 83: Incident - mark as reviewed.

If you click on 'Mark as Reviewed' a review checklist will pop up requiring you to specify the action taken to the incident, and the review stage can be chosen. The information entered into this page will be used to track your risk assessment through the auditing function. Complete the form, tick the 'Complete Review' checkbox and click the '**Save**' icon at the bottom of the page to complete the review.

25 INCIDENT AUDIT

The incident database offers the same auditing functionality as the Risk Module in Hazman. Once the incident database is in audit mode (activated in the Settings tab) any changes you make to the database will be recorded in this section. When incident entries are created, updated or reviewed, an entry is made in the 'Audit' section to provide users with an extensive record of the activity of users within the database.

The information in the audit log shows the date of the action, type of action taken, by whom, which incident the action was taken on and a user entered description of their action.

26 INCIDENT REPORTS

Incident reports can be created from the ‘Reports’ tab. The reports can be viewed in Hazman itself, or you can export them to PDF, XML or DOCX files and view them using third party software. To save any report you have made in Hazman, you can either publish it in the register (**Section 26.1**), or export it (**Section 26.2**).

The incident reports available are:

- Incident Actions – A list of all incident actions which can be filtered by status.
- Incident List Report – A list of all incidents which can be filtered by: date, areas, events, vessel / resource types and categories.
- Incident Reviews – A list of incidents and the date they were reviewed. Can be filtered by: date and review stage.
- Incident Summary Report – A summary of incidents, displayed as graphs and pie charts as well as in a log format.
- Maritime Accident Summary (Navigational Database) – A summary of casualties, and main incident: types, factors, locations, and conditions.

26.1 PUBLISHED INCIDENT REPORTS

You are able to publish any of the reports generated by Hazman. Publishing reports allows you to save your report in the database, enables you to keep a record of your organisation’s risk management progress and export (see **Section 26.2**) any of these reports at a later date for the purpose of data comparisons. To publish a report you must first generate the desired report. To do this click on the reports tab to navigate to the reports page. Once there, click on the report you want to generate and Hazman will load your new report. To publish the report, click on the ‘**Publish**’ icon in the top right corner of the screen. All published reports can be found in the ‘Published Reports’ section at the bottom of the reports page.

26.2 EXPORTING INCIDENT REPORTS

For ease of viewing, sharing and processing the data provided by Hazman, we have made it possible for you to export your reports as PDFs, Excel files and Word documents. While viewing the report in Hazman click on the ‘**Export to...**’ icon that creates the format you want. These icons are located in the top right of your screen. Your report will be converted into your chosen format and then begin downloading.

27 IMPORTING AN INCIDENT

You are able to import an incident by navigating to the 'Import' tab. From here you can download the 'Incident Import Template' Excel file. Fill in the columns and save the file.

Important: You need a minimum of two incidents to import from an Excel template, and the import requires columns to be in the exact order specified in the template.

To import the file press 'Browse', locate your incident import template and click '**Import**'.

28 INCIDENT DOCUMENT DATABASE

The ‘Document Database’ tab is where you can find all of the documents uploaded to your incident database.

28.1 VIEWING DOCUMENTS

To view a document from the document database, the item must be downloaded to your computer. To begin downloading a document, click on the item you wish to view and your browser will begin downloading. Once the document has been downloaded, open the file to begin viewing.

28.2 UPLOADING DOCUMENTS

To upload a new document to the document database click the ‘Upload Document’ icon in the top right of your screen. A pop-up window will load (**Figure 84**) to assist you in uploading your new document. This new window will require that you provide a name for the document (under ‘Title’) and specify where the document is on your local hard drive under ‘Upload File’. Once you have completed these steps, click the ‘Save’ icon and Hazman will begin uploading your new document. Once finished, the document will appear in the list. You are also able to add a web address by inserting the address in the ‘Add file from URL’ box.

The form is titled 'Upload Document'. It contains three main sections: 'Title' (a text input field), 'Upload File' (a text input field with a 'Browse...' button), and 'Add File From URL' (a text input field). At the bottom are two buttons: a blue 'Save' button and a white 'Cancel' button.

Figure 84: Upload document.

29 AIS SWEEP PATH MODULE

The AIS swept path module enables you to request up to eight MMSI numbers in one swept path and play back the vessel movements. You are able to increase or decrease the speed of the playback and choose whether or not to have a lag (producing a snail trail). **Figure 85** illustrates a swept path in Hazman II with a lag.

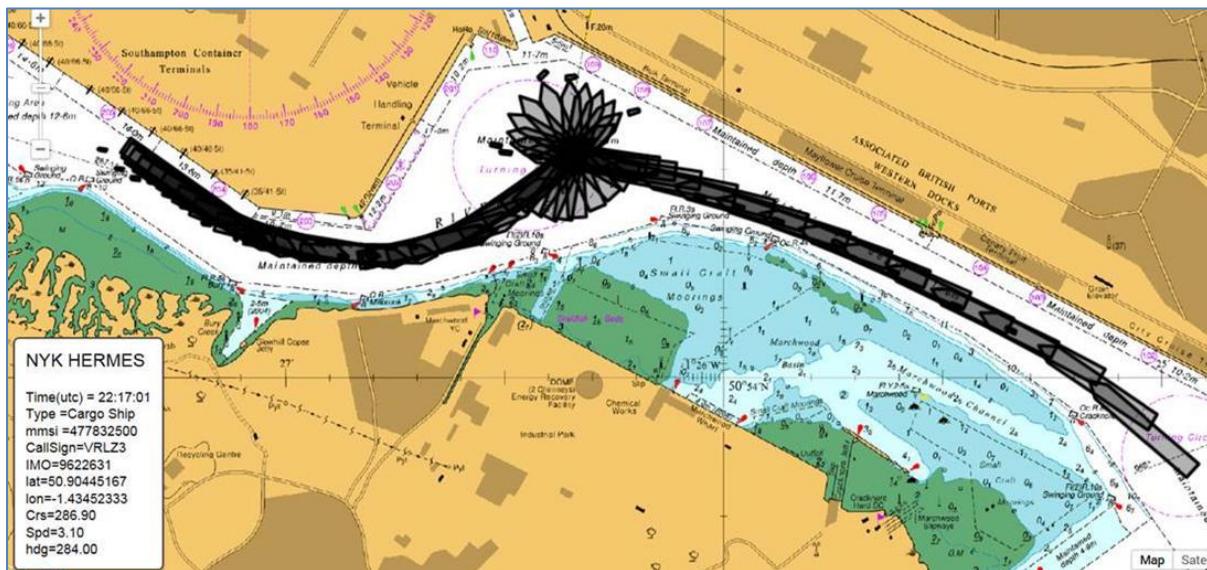


Figure 85: Swept path of NYK Hermes.

29.1 GETTING STARTED

The AIS Module is located on your organisation's dashboard after you login, click on the '**Swept Paths**' button to proceed (**Figure 86**).

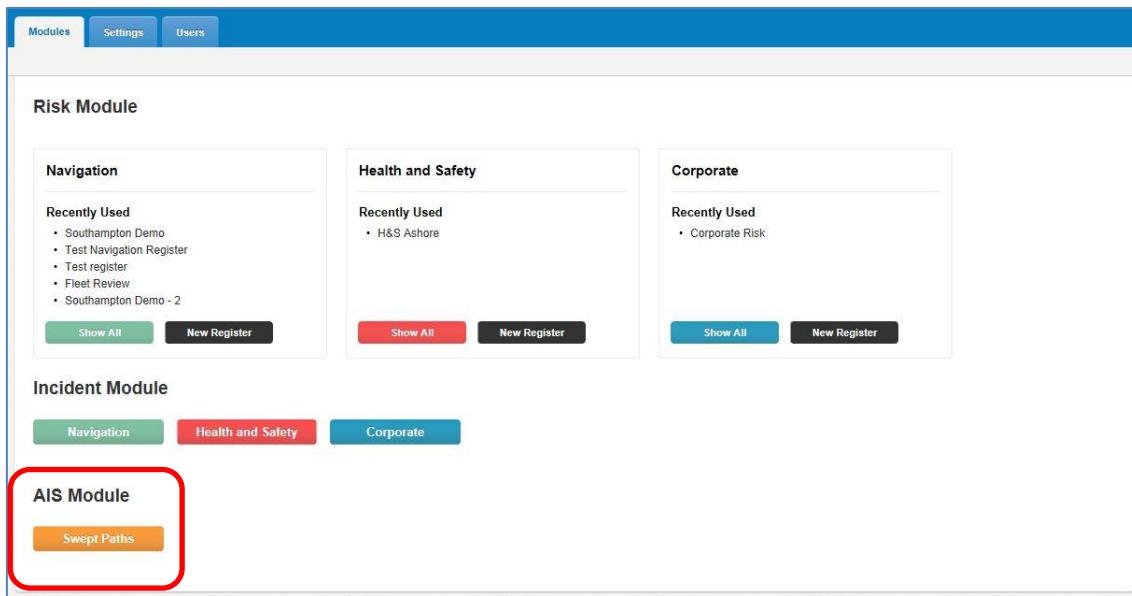


Figure 86: AIS Module location.

30 SETTINGS

30.1 CHART

The chart tells Hazman where to default its map view to (Figure 87). You can change the location by zooming in or out by using the buttons on the left hand side of the map. To pan the chart side to side use the button in the top left or hold down left click and drag with your mouse. Once you are happy with the default view, click 'Save Location'.

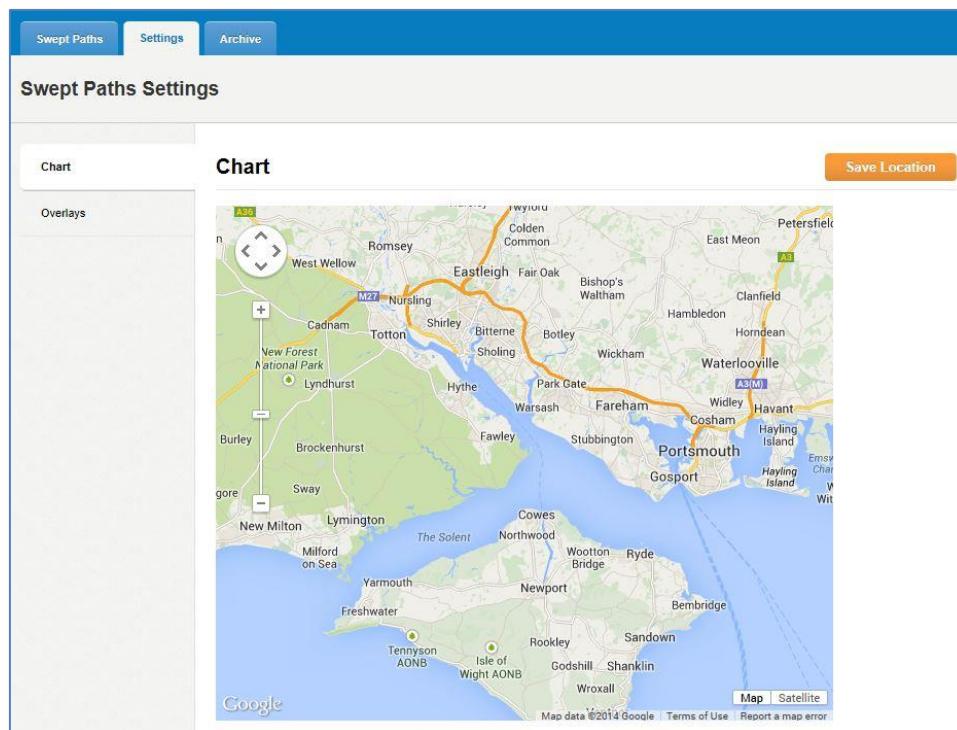


Figure 87: Chart swept path settings.

30.2 OVERLAY

30.2.1 Chart Overlays

Hazman allows you to add images and overlay them on your map view. It is recommended that you contact a Marico Consultant if you wish to make any changes to your overlays.

30.2.2 AIS Feed

The 'Live Overlay URL' will be provided to you by a Marico Consultant and will be entered as a web address. Please do not change the URL, if you have any issues please contact us.

31 SWEEP PATHS

The main display shows a map view of your area with any completed swept path extracts listed below (**Figure 88**).

To control the map view, use the buttons in the top left hand corner of the map to zoom in and out and to navigate around. You may also use the mouse to ‘drag’ the map around. To expand the map view click on the expand button in the top right hand corner of the map. To contract the map you can press the same button.

To access any swept paths you currently have stored or requested click on the entry below the map.

Date	Swept Path	Interval	MMSI Numbers	Status
5 August 2014	Red Jet 5 - 5th August 2014	None	Red Jet 5 (235071204)	Active
7 July 2014	MSM 7th July 2014	None	MSM (227023100)	Active

Figure 88: AIS Swept Path Module.

31.1 LIVE AIS

Hazman will display live AIS over the map view. Each vessel is represented in two ways; firstly the predicted track over 6 minutes is shown as a red line extending from the centre of the vessel, if the vessel is stationary these will appear as a red dot (**Figure 89**).

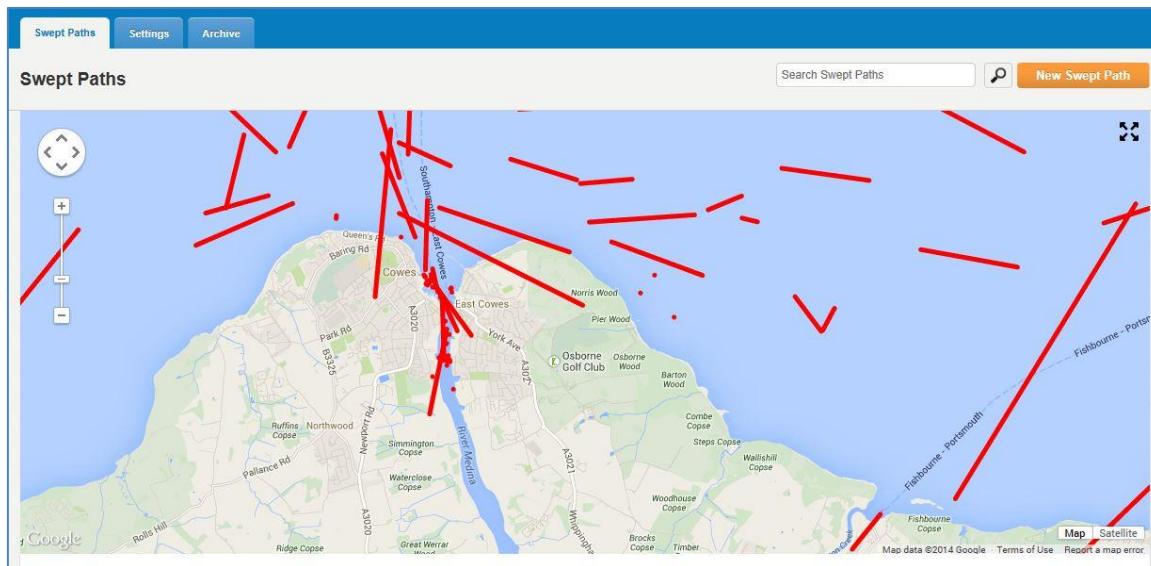


Figure 89: Live AIS tracks.

Secondly if you zoom in on a vessel you will see her outlines derived from AIS (**Figure 90**).

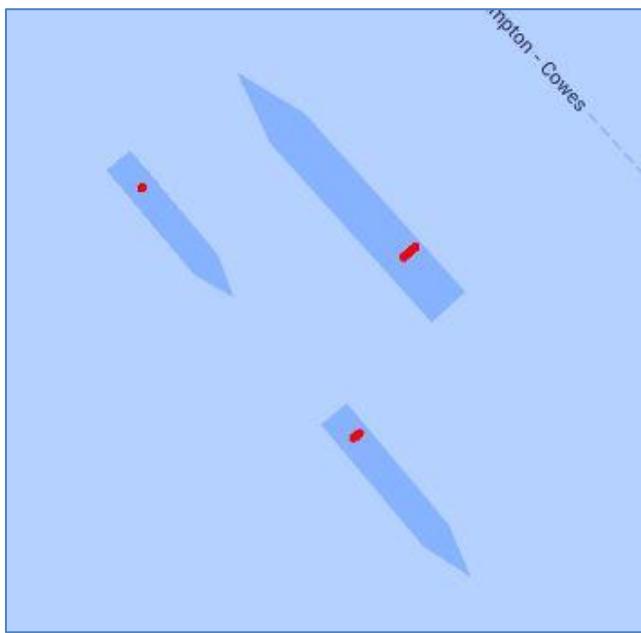


Figure 90: Live AIS – Offsets.

You can get more information about a vessel by clicking once on the red vessel track (**Figure 91**). This will open a vessel information window (best seen with an expanded map view). Details about the vessel including size, ship type and name will be displayed if made available. Live information is also displayed including location, course, heading and speed. You can extract the last 12 hours of data for the selected vessel by pressing the 'Historic Data' button at the bottom of this vessel information window. The data will open in Google Earth.

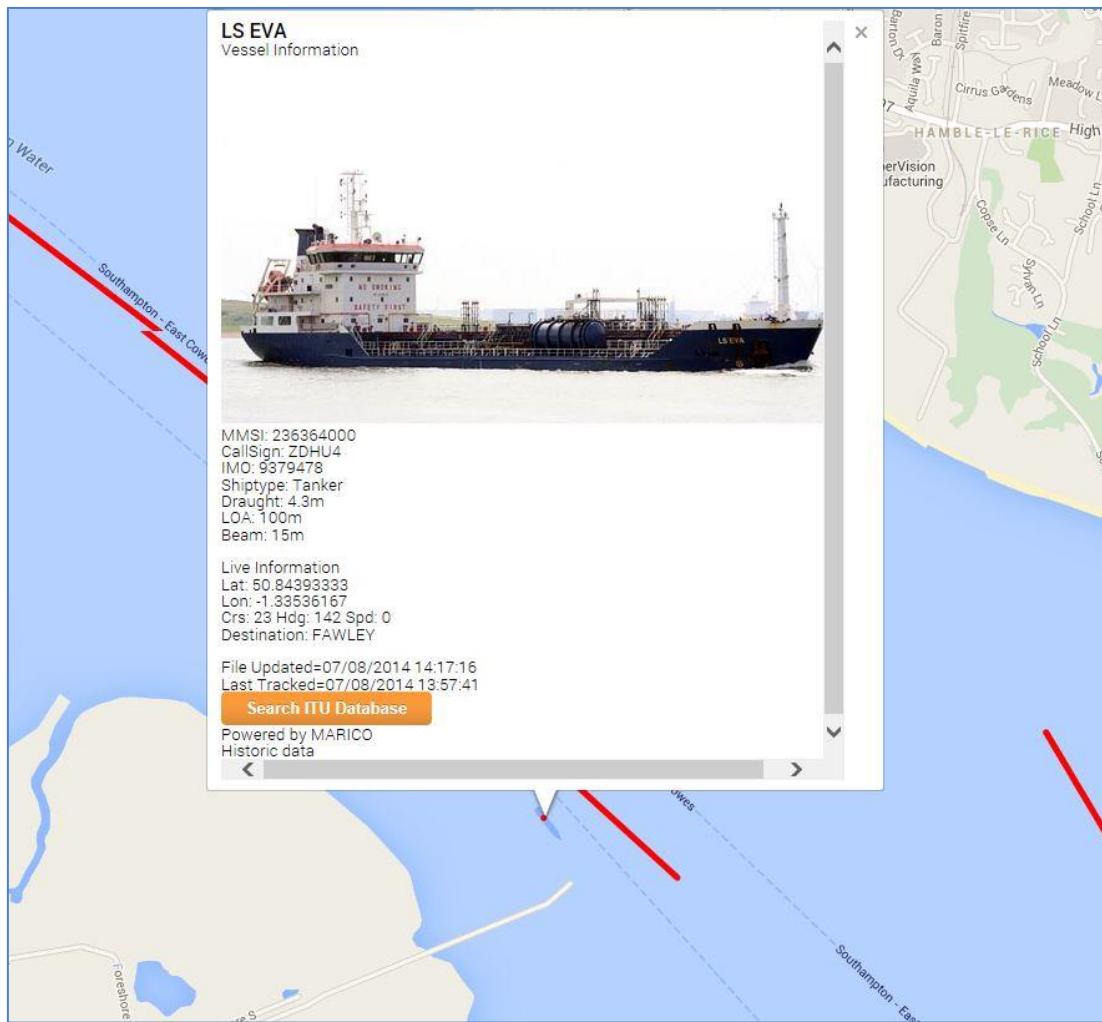


Figure 91: Querying a vessel.

31.2 NEW SWEEP PATH

To request a new swept path click the '**New Swept Path**' button in the top right above the map view. This will open the request menu as shown in **Figure 92**. You are prompted to provide some basic information about your request including:

- A title for your swept path and a text description (these will help you find the Swept Path later);
- The date of your swept path, and you are given the option to extract the following day;
- The extract interval of '1 Minute' or 'None' is the timing between AIS transmissions. If '1 Minute' is selected Hazman will only extract one position per minute for the requested vessels, which is useful for quick extracts. If no interval is selected then all available AIS transmissions will be extracted; and

- The MMSI numbers of the vessels you are requesting. Be careful to enter the correct MMSI numbers and that there are no spaces either side in the box. You can also enter a vessel name to help keep track of your extracted data.

Swept Paths Settings Archive

Swept Path > Request Swept Path

Request Swept Path

Title
Title of Swept Path

Description
Description of Swept Path

Date
7 August 2014

Include Next Day

Interval
1 Minute

MMSI Numbers	Vessel Name
Required	Vessel Name
Additional MMSI	Additional Vessel Name
Additional MMSI	Additional Vessel Name
Additional MMSI	Additional Vessel Name
Additional MMSI	Additional Vessel Name
Additional MMSI	Additional Vessel Name
Additional MMSI	Additional Vessel Name
Additional MMSI	Additional Vessel Name
Additional MMSI	Additional Vessel Name

Map

Map data ©2014 Google Terms of Use Report a map error

Figure 92: New Swept Path Request.

Once you are happy with the settings click '**Save Swept Path**' in the top right of the screen. Hazman will take you back to the main display and you will see your recent request with a status of '**Pending**' (see **Figure 93**). Extracting data can take a while if no interval and several vessels are requested so please be patient. Once the extract is ready the status will turn to '**Active**'.

Date	Swept Path	Interval	MMSI Numbers	Status
3 July 2014	Southampton Patrol 03/07/2014	1 Minute	Southampton Patrol (235073277)	Pending
23 June 2014	Red Falcon 23 June 2014	None	Red Falcon (235014365)	Active
21 June 2014	Red Falcon Berthing 21/06/2014	None	Red Falcon (235014365)	Active
10 June 2014	Etretat - engine failure	1 Minute	Etretat (228022900), SD Indulgent (235070763)	Active

Figure 93: Pending Swept Path.

You may also use the live AIS overlay to select a vessel on the screen and you can copy and paste the MMSI number when requesting a swept path.

31.3 VIEWING YOUR SWEPT PATHS

Once you have a swept path active, you can view it by clicking on the entry on the main page (**Figure 94**). You will then see your map view with several additional buttons (you may wish to turn off the ‘live overlay’ to de-clutter the view). Your vessel(s) will then be displayed at a single point of time as a grey outline with a black border (when zoomed out this may appear as a black dot).

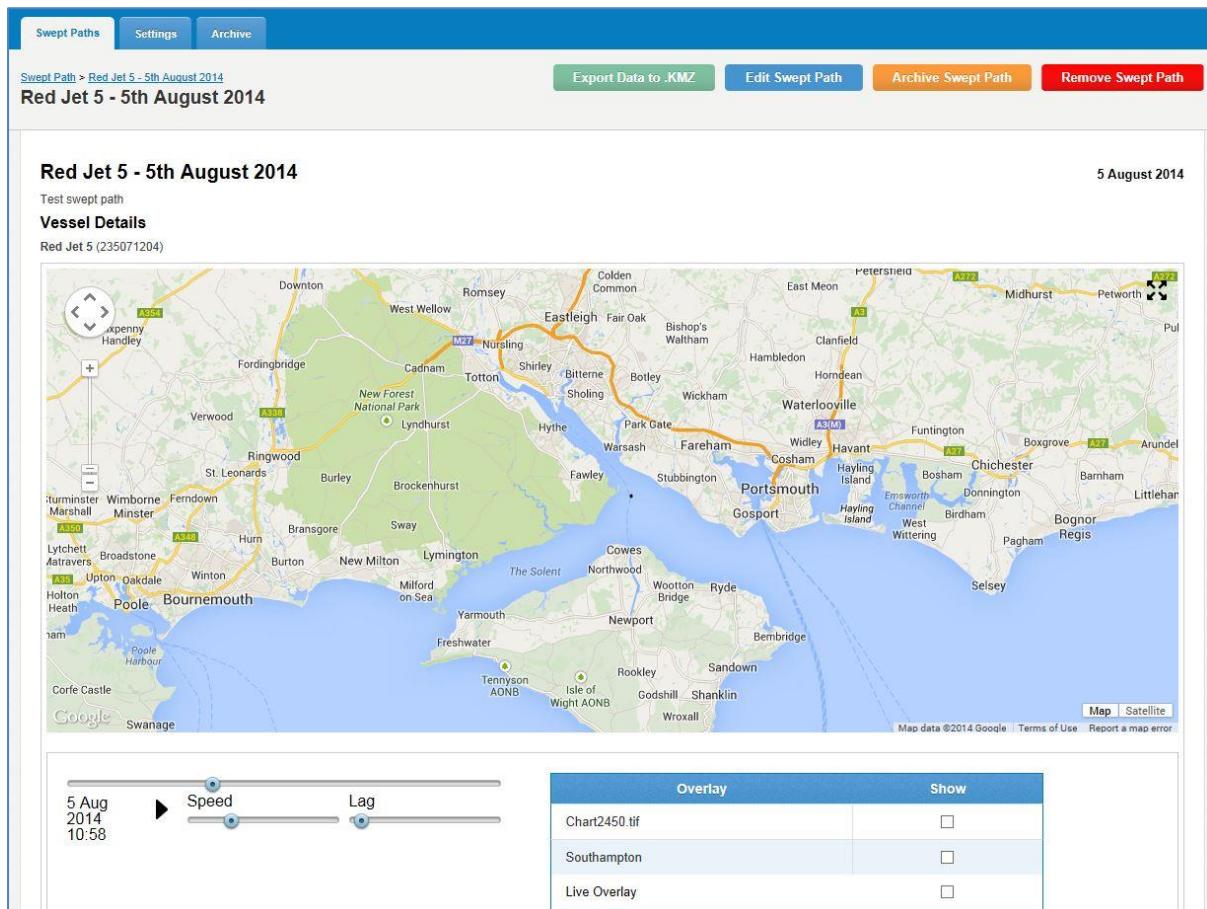


Figure 94: Viewing a swept path.

The three sliders and the play button in the bottom left of the screen are your playback controls:

- Pressing the play button will play the vessel track in fast time;
- The top slider will allow you to jump to certain time points by clicking on it. You can also drag the slider position by holding down left click on the slider point and moving it left and right;
- The ‘Speed’ slider controls the speed of playback. The slowest option (slider dragged to the left) is approximately one minute of data plays in one second. The fastest option (slider dragged to the right) is approximately one hour of data in one second; and

- The 'Lag' slider controls whether the playback shows previous vessel positions, often referred to as the 'Snail Trail' (**Figure 95**).

You can get more information about the vessel position by hovering your mouse over the vessel position (**Figure 95**). This will provide details about the vessel at each point in time including speed, course and heading.

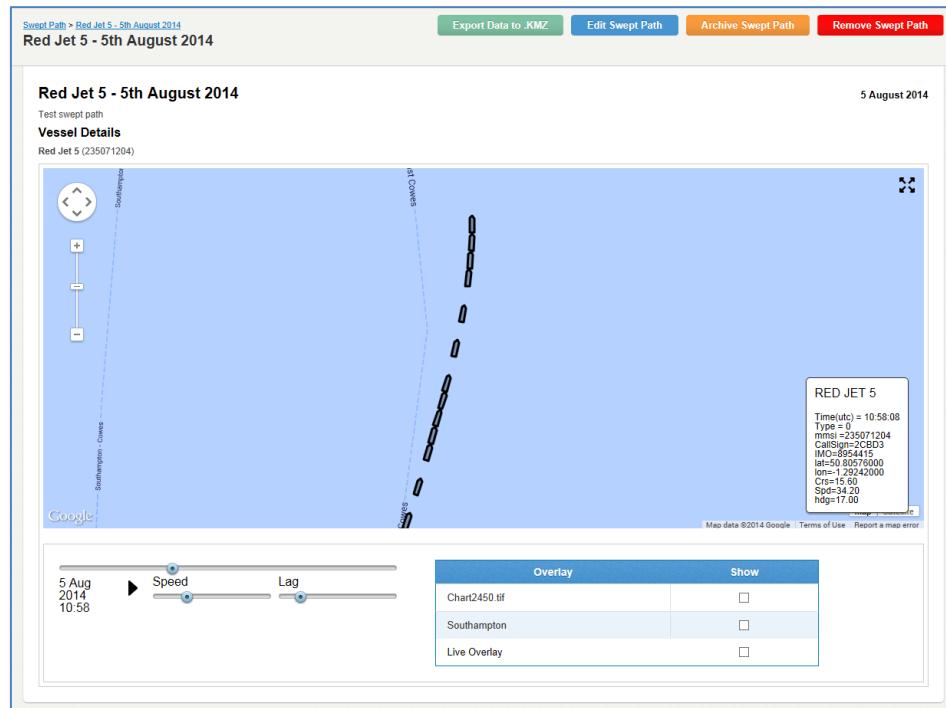


Figure 95: Playback lag with vessel details.

Other options are available at the top of the screen include:

- Export data to .KMZ – this will open the swept path data in Google Earth if installed;
- Edit Swept Path – to change the details of the swept path extract;
- Archive Swept Path – to move the swept path to the archive tab; and
- Remove Swept Path – to delete the swept path.

32 ARCHIVE

The archive allows you to store swept paths without your main display being cluttered. To archive a swept path, click on a swept path on your main display, and press the '**Archive Swept Path**' button. It will then be moved to the archive tab (**Figure 96**).

To restore the swept path, simply find and click on the swept path in the 'Archive' tab and press '**Restore Swept Path**'.



Date	Swept Path	Interval	MMSI Numbers	Status
05 Aug 2014	Red Jet 5 - 5th August 2014	None	Red Jet 5 (235071204)	Active

Figure 96: Archived swept path.

33 GLOSSARY

ALARP: The area in between the intolerable and acceptable areas on a risk matrix used in risk assessment. ALARP is an acronym for ‘As Low As Reasonably Practical’ and can be defined as ‘tolerable’ if the further complete reduction of a risk is impractical.

Accident Categories: Accident categories are used to organise hazards into categories for assessment.

Baseline Risk: The risk score at the time of your risk assessment.

Consequence: The outcome(s) of a hazard occurring.

Frequency: The rate at which an event occurs.

Hazard: An event that would be the source of potential damage or harm to a person, property, reputation or environment.

Inherent Risk: The original risk score given to a hazard with no risk controls attached.

Risk: The probability of an event occurring that has the potential to cause damage to a person, someone’s property, a reputation or the surrounding environment.

Risk control: Anything that would mitigate the risk of a hazard occurring.

Residual Risk: The risk score after a new control with an assigned percentage has been applied.

